

**INFLUENCE OF GENDER DISPARITY ON AGRICULTURAL
PRODUCTION AMONG SMALLHOLDER FARMERS IN
CHEPTAIS DIVISION MT. ELGON DISTRICT, KENYA**

BY

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DECLARATION

The research project report is my original work and has not been presented for any award in any University.

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DEDICATION

This work is dedicated to my family and my son Darren for giving me the moral and financial support to pursue this noble Cause.

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LIST OF ABBREVIATIONS AND ACRONYMS

AGMARK	Agricultural Market Development Trust
AfDB	African Development Bank
CEDAW	Convention of Elimination of Discrimination against Women
FAO	Food and Agricultural Organization
NGO	Non- Governmental Organizations
FCI	Farm Concern International
FHHS	Female headed households
GDP	Gross Domestic Product
GAD	Gender and Development
IFAD	International Fund for Agricultural Development
KNDP	Kenya National Development Plan
SOFA	State of Food and Agriculture
SPSS	Statistical Package for Social Scientist
UN	United Nations
UNDP	United Nations Development Program
VSLA	Village Savings and Loan Associations

ABSTRACT

The inequality between women and men is seen both as a human and people –centered factor that hinder development. This study sought to find out how gender disparity influence smallholder agricultural production in Cheptais division of Mt Elgon district. According to the study, gender disparity is the discrimination or differential treatment based on gender and in most developing countries the discrimination tends to favor men at the expense of women, who are often a crucial resource in agriculture and the rural economy. Involvement of both women and the youth in agriculture and the benefits they derive from it has been shroud in gender stereotypes that propagate male dominance. A number of development programs with a broad goal of empowering the community hardly take into consideration gender dynamics in their development programs. This trend is observed in policies, strategies and plans guiding development work. The overall development of a nation calls for maximum participation of both men and women. Gender inequality exacerbates food insecurity, malnutrition and poverty. The proportion of women in Kenya accounts for 51% of the population while the rest are men. This means that of the total potential human resource available for utilization in national development, women form more than half. The objectives of the study included: to investigate the extent to which gender disparity on access to and control of productive resources influence agricultural production among smallholder farmers, to establish the level at which gender disparity on access to extension services influence agricultural productivity and to identify strategies to address gender disparity to influence smallholder agricultural productivity. The study answered the following research questions: To what extend does gender disparity on access and control of productive resources influence smallholder agricultural production? What level of gender disparity on access to extension services influence smallholder agricultural productivity? Are there strategies that can be used to address gender disparity to influence smallholder agricultural productivity? The study utilized descriptive study design that involved administration of questionnaire and interviews to a sample of 361 respondents drawn from a population of approximately 6000. Clustered sampling method was used to select respondents and data was analyzed using Statistical Package for Social Scientist (SPSS). The findings of this study indicated that women had more access to agricultural resources but male had control and decision making authority on the resources with only 41(11.4%) of the female out of the 361 respondents interviewed having control over land. Control over resources positively influence productivity and women who had access to resources showing to be more effective in productivity as compared to male. The study also found that women had more access to credit as compared to men due to the fact that women were more involved in VSLAs that advance credit to members. The study made the following conclusions; control over income from the farm and ability to access extension service had the greatest effect on land productivity as compared to having authority on how land is used and that capacity development programmes for advocacy purposes could reduce the effect of gender disparity on smallholder agricultural productivity. This study recommends that gender experts together with all those with information on gender mainstreaming in agricultural productivity should engage other stakeholders in sensitization and capacity development efforts. Also recommended is adoption of gender sensitive curriculum that accommodate women and consider their work load by extension providers. Further research should be carried out to analyze the factors promoting gender disparity in access and control of productive resources. Another research should be undertaken to determine the role played by extension services in reducing gender disparity in smallholder agricultural production.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The quest for development has led to a consensus that participation by both men and women not as objects of development but as equal partners is essential for sustained interventions. Development initiatives can be significantly improved through greater awareness on the part of government counterparts, project management and beneficiaries on gender related issues and their practical implications. Gender inequality has been highlighted as one of the main contributing factor to poverty among smallholder farmers in many developing countries. The study on women and youth involvement in agriculture has been very extensive in developed countries like United States, Canada, Britain and Brazil among others. In Third World countries, the role of women and youth in smallholder agricultural production can never be over emphasized (Damisa & Johana, 2007). In most developing countries, Kenya included, gender inequality is a major obstacle to meet the MDG targets. In fact, achieving the goals will be impossible without closing the gaps between women and men in terms of capacities, access to and control of productive resources.

Despite the dominant role women and youth play in agricultural production in the third world countries, they are hardly given any attention in the areas of training and or visitation by extension agents with improved technologies. Banks hardly grant them loans and they are hardly reached with improved seeds, fertilizer and other inputs (Saito & Spurling, 1992). Women and youth tend to have more constraints than men in agriculture. Saito and Spurling (1992) categorically stated that “Many constraints such as resource endowments or social factors on

agricultural productivity are gender neutral. But within each social and economic group, women and the youth tend to have more constraints than men (Elena, 2009).

Amali and Ebele (1998) suggested that women's contribution to farm work is as high as between 60% and 90% of the total farm tasks performed. Women perform such tasks as land clearance, cultivation, planting, weeding, fertilizer application, harvesting, winnowing, milling, transportation and marketing (Amali&Ebele, 1998). All recognize the role played by women in food production.

To realize the MDGs, governments and their partners must seriously and systematically 'engender' efforts to achieve all the goals (UNDP, 2006). In the past decade, UNDP has put in place a number of policies and strategies to mainstream gender throughout its programmatic activities. In an attempt to reach women in all aspects of society and from wide ranging dimensions, UNDP began the gender Mainstreaming Initiative in Sudan. The project helped identify the priorities and future entry point for gender equality and women's empowerment to be considered in UNDP country Programme Action Plan 2009-2012.

In Tanzania, women involvement in agriculture is limited to livestock management and farm operations. However, when it comes to the sale of land or livestock, they must seek men's approval (FAO, 1998). In Uganda, lack of education has been cited to incapacitate women from effectively involving themselves in agriculture.

Experience of rural poverty and vulnerability in Ethiopia are also highly gendered. Women in Ethiopia play a significant role in smallholder agricultural productivity providing approximately 40 to 60 percent of all agricultural labor (World Bank, 2008) but suffer from unequal access to resources and capacity building opportunities on a number of levels. There is a

significant difference in poverty between female headed households and male headed households, 54 percent compared to 48 percent of male headed households are more vulnerable to household level shocks such as illness.

Agriculture is the mainstay of the Kenyan economy and currently represents 24 percent of the GDP. Small scale holder farmers contribute 75 percent of the total agricultural output in Kenya (USAID, 2007). A 2007 World Bank study estimated that women own only 1 percent of the registered land titles and only 5-6 percent of the titles are held joint names. Kenyan women's access to natural resources especially land is generally controlled by her husband or male relative. A combination of gender-blind development interventions and policies under agricultural extension services has resulted in resources, training and technology not being directed to women who, therefore has less access to inputs and extension services for agricultural production despite the fact that women are central to Kenyans agricultural productivity (Kabutha 1999). Recent estimates suggest that women farmers in Kenya would increase yields by 10 percent if they received the same extension information as men. The world bank report 'Gender and Economic growth in Kenya' concludes that eliminating gender based inequalities in education and access to agricultural inputs could result in a one-off increase in output by as much as 4.3 percent points of GDP, followed by sustained year-on-year increase of 2.0 to 3.5 percentage points in GDP growth in Kenya (World bank 2007 p 19).

Failure to understand and address gender dimensions within programmes and projects, risks wasted development resources and negative effects on household welfare, women's equality, and environmental sustainability (ADB, 2009). For a project to realize its intended goals, gender disparities must be safeguarded against. In a research conducted on gender

mainstreaming, government officials dealing with gender mainstreaming in Africa countries reported a resistance to implementation level where senior officials give higher priority to other activities and grade gender issues at lower level (Wendoh and Wallace, 2005). A well-designed agricultural project can be a powerful tool in the pursuit of gender equality. Therefore, gender equality should not only be regarded as a factor requiring attention in agricultural projects but rather as a critical factor ensuring the project's success and sustainability by ensuring that women do not become worse off both absolutely and in relation to men (World Bank, 2008).

This research project therefore addressed these gender disparity factors that create inequalities between men, women and the youth and recommend actions to be taken to unlock opportunities for both genders.

1.2 Statement of the Problem.

The debate on gender disparity and its effects on smallholder agricultural productivity is highly complex and contested. There are many proponents of gender mainstreaming in agriculture as there are opponents. People -centered approaches do not always ensure that gender perspectives are taken into account. A study in Kenya by Saito and Spurling (1992), found that women provide 60 percent of the farm income but they do not necessarily have control over this earned income. For example women performed 72 percent of the labor for French bean production but maintained control over only 38 percent of the income generated hence discouraging women involvement in the sector (USAID, 2007). A research conducted by Ebila (2003), reported that although Uganda was known for having a gender –sensitive approach to agricultural development, in the late 1990s there were not any clear guidelines on how to mainstream gender in this sector, despite the fact that gender cannot be divorced from effective land and water management. Similarly, Majekodunmi of Nigeria in his research observed a

major obstacle that the traditional village system was patriarchal, and endowed men with all decision –making powers (Majekodunmi, 2006).

Gender imbalances are rampant in Mt Elgon district. Very few women and the youth own land and other resources that are crucial for production purposes. Access to factors of production such as credit is curtailed since men own land which is the main factor of production. Women account for 50% of the total population while the youth account for 28.8%, low participation in decision making and access to productive resources are the main challenges facing the youth in the district. Gender inequality was highlighted as one of the issues hindering development in the division with cultural and traditional practices and stereotyping as the main causes. Inadequate extension staff was also found to be the cause of high incidence of poverty since it hinders agricultural productivity.

Out of the four main divisions that make up Mt Elgon district, namely Cheptais, Kopsiro, Kapsokwony and Kaptama, Cheptais is well endowed with good volcanic soils which should support higher agricultural productivity hence improved social economic status yet the division is the worst hit by poverty with a poverty index of 56%.

The study detailed here therefore sought to address this information gap by examining the influence of gender disparity on smallholder agricultural productivity in Cheptais division.

1.3 Purpose of the study

The purpose of the study was to determine the influence of gender disparity on Agricultural production among smallholder farmers in Cheptais division Mt Elgon district, Kenya

1.4 Objective of the Study

This study was guided by the following objectives,

- i. To investigate the extent to which gender disparity on access to and control to productive resources influence agricultural production among smallholder farmers in Cheptais division.
- ii. To establish the level at which gender disparity on access to extension services influence agricultural production among smallholder farmers in Cheptais division.
- iii. To identify strategies that can be used to address gender disparity so as to influence agricultural productivity among smallholder farmers in Cheptais division.

1.5 Research questions

This study was guided by the following questions;

- i. To what extent does gender disparity on access to and control of productive resources influence agricultural productivity among smallholder farmers in Cheptais division?
- ii. At which level does gender disparity on access to extension services influence agricultural productivity among smallholder farmers in Cheptais division?
- iii. Are there strategies that can be used to address gender disparity so as to influence agricultural productivity among smallholder farmers in Cheptais division?

1.6 Significance of the Study

The commonwealth secretariat paper on gender mainstreaming (2001) refers to the “African farmer and her husband”. This phrase is very important since it suggests that women’s involvement in agriculture cannot be compared to men’s.

It is hoped that the study findings would be helpful to the government to formulate policy on smallholder Agricultural development projects. Gender mainstreaming is critical in ensuring increased productivity among smallholder farmers hence the study will provide policy recommendations on how gender mainstreaming can contribute to increased productivity and better livelihood particularly in areas where gender discrimination is more rooted in people's culture.

It is also hoped that the study report might be shared with the community, relevant line ministries in the area and the non-Governmental Organization (NGOs). This would strengthen the relationship between them by reviewing the existing evidence on gender parity and their effectiveness on Agricultural production.

It is also hoped that development partners who have recently taken gender analysis as an important aspect of the design; implementation and evaluation of development projects can also adopt the results of the report to guide their decisions for effective and efficient delivery of their projects.

Finally, it is hoped that this document would contribute to the body of knowledge in future research and act as a source of reference to all stakeholders in the agricultural industry.

1.7 Basic assumptions of the study

The study was guided by several assumptions. The first, being that all the farmers that were involved in study understood gender disparity issues that affect the community: secondly, that the sample chosen was adequate to help in drawing valid conclusions and lastly, the respondents would be honest in giving the required information.

1.8 Limitations of the study

The study intended to draw responses from 361 respondents, a process which required a lot of time and this was overcome by use of research assistants who assisted in administering the questionnaires. Secondly it took time to secure appointment from the village elders who would help the research assistants in identifying the homes of the chosen respondents because of their busy schedule and therefore prior arrangements were made to counter this set back. Thirdly, the findings of the study were limited to Cheptais Division and may not be easily generalized to other similar projects. Finally weather changes slowed down the data collection process as sudden downpours interrupted the exercise necessitating a break in order to cope with the situation.

1.9 Delimitations of the study

Cheptais division is located in Mt Elgon District of Bungoma County and is made up of the following four locations namely Sasur, Chesikaki, Cheptais and Chepkube. It covers a total area of 79.5 km² with a total population of 46,403 with a population density of 575 according to the district development plan 2008-2012 of whom 80% of the population depend on agriculture for their livelihood. The division experiences bimodal rainfall pattern with long rains occurring in March –July and short rains in September –November. The climate favors agricultural production. The male female ratio in the division stands at 49:51 respectively. The average land size in the district is 0.85 according 2011 division yearly report and the average family size is 6. Cheptais division was selected because out of the four division that make up Mt Elgon district,

Cheptais division has got the highest population of the poor with gender bias being cited as the major contributor to the high poverty level.

The primary focus of the study was influence of gender disparity on agricultural production among smallholder farmers in Cheptais division. The study focused on 361 responders who were stratified in the 4 locations that make up Cheptais division. The study was restricted to descriptive survey as a research design. Since the study was a social science research and the target population had varied demographic characteristics in terms of gender, age and socio-economic status, the design was the most appropriate in collecting information on opinion and experiences of respondents.

The questionnaire and in-depth interviews were used to collect data. Where the questionnaire was inadequate, interviews were conducted especially when dealing with illiterate respondents.

1.10 Definition of significant terms used in the study

Impact: Refers to the outcome that results from gender disparity among smallholder farmers

Engender: Process of ensuring that planning and programming is appropriate for and takes into account the female and male differences and concerns.

Gender- Socially and culturally constructed differences between men and women: as distinct from sex which refers to their biological differences. The social construct vary across Culture and time.

Disparity: Refers giving differential treatment to individuals on the grounds of their gender

Gender disparity: Refers to discrimination based on gender

Smallholder farmers: According to the study, it refers to individuals holding an average land

Capacity of < 1 acre to 5 acres on which they practice agricultural
Production.

Access: Refers to the ability to use a resource or take advantage of an opportunity

Control: Refers to the ability to make decisions about and derive benefits from a resource and opportunities.

Strategies: From the study stand point; it refers to ways of achieving gender equity in smallholder agriculture production in order to realize increased agricultural production.

Productivity Yield produced in kilo grams per acre of land

1.11 Organization of the study

The study was organized into five chapters: chapter one included background of the study, statement of the problem, purpose of the study, objectives of the study, research questions, statement of the problem, significance of the study, scope of the study, limitations of the study, delimitations of the study, definitions of the operational terms used in the study and organization of the study.

Chapter two contained the review of related literature. First of all general literature was reviewed concerning gender disparity and agricultural production among smallholder farmers, followed by theoretical framework, conceptual framework and operationalization of variables under conceptual framework.

Chapter three contained the research methodology that was used to answer the research questions. These included, the design of the study, sample size and selection, validity and reliability of the research instruments, data collection and analysis and ethical considerations.

Chapter four comprised data analysis, presentations and interpretation and lastly chapter five will contain summary of findings, contributions to knowledge, conclusions and recommendations.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Introduction

In this section there is the concept of gender and smallholder agricultural productivity, gender access and control of productive resources, gender and access to extension services, strategies for mainstreaming gender in smallholder Agriculture productivity, theoretical framework and relevance of the model, conceptual framework and operational definition of variables.

2.2 Concept of gender, Agriculture and rural development

In most developing countries, gender disparity is a major obstacle to meeting the MDG targets. According to UNDP (2006), achieving the goals will be impossible without closing the gap between women and men in terms of capacities, access and control of resources and opportunities. A number of serious misconceptions around gender related issues do exist hampering the effective implementation of gender related policies and strategies (Hannan, 2001).

Of 1.3 billion people in absolute poverty globally, the majority are women who are mainly found in rural areas and practice smallholder agricultural production. Poverty among women has been linked to their unequal situation in the labor market, their poor treatment under social welfare systems and their inferior status and power in the family (UNDP, 1995). Women bear a significant responsibility for the family's subsistence. In virtually all societies, women are the main carers in a family and they are often willing to sacrifice their own welfare for the benefit of other family members, especially their children (Tisdell, 1999).

Most development plans and policies of African states have been gender blind. The planning and policy making process in the region have failed to appreciate the fact that women and men have different roles and that their needs and constraints are different. A recent study by the World Bank (2002) for instance estimated that women in sub-Saharan Africa produce up to 80% of all staple food but own less than 10% of the land. In another study on the world economic crisis and its impact on women, it was further estimated that women in this region contribute up to 30% in ploughing, 50% of labor in planting, 60% of labor in weeding, 85% of labor in processing and preserving food while performing up to 90% of all domestic chores.

Women and men experience poverty differently, and different aspects of poverty (deprivation, powerlessness, vulnerability, its seasonality) have gender dimensions (World Bank, 1996). Vulnerability reflects the dynamic nature of poverty such as defenselessness, insecurity and exposure to risk. Vulnerability is a function of assets. The more assets people have, the less vulnerable they are. Assets include land, capital and ability to participate in decision making process. Both absolute and food poverty are associated with lack of physical and human assets (World Bank, 2002). Women and children are more vulnerable because tradition usually gives them less decision-making power over assets than men.

African culture is a barrier to development because it perpetuates culturally sanctioned biases against women and provides excuses for men. Cultural biases operate at all levels ranging from national institutional level, government policy, community level, household and individual levels (Kiriti, et al, 2003b). In Africa, women's participation at all levels of decision-making is low.

Research in Kenya (Nzioka, 2009) confirms that the land determines the economic well-being, social status and political power of individuals in society.

Adeoti and Awoyemi (2006) examine the effect that gender inequality in employment has in rural cassava farm holdings in southwest Nigeria, finding that increased gender inequality decreases productive efficiency.

Agriculture remains the main stay of Kenya's economy. Currently the sector has suffered a big drawback as a result of prolonged droughts, increased poverty and to some extent, the 2007 post-election violence. In addition to increased poverty, food sufficiency and security has remained a dream. Any policies that seek to give the agriculture sector a big push would result in rapid economic growth thereby helping in poverty alleviation. Since women perform most of the work in agriculture their experience with food production and processing should be acknowledged and deliberate efforts made to tap their knowledge and skills through research. Further, deliberate efforts should be engaged to improve their performance by deliberately targeting them as recipients for new technologies and innovations in agriculture.

(www.ku.ac.ke/images/stories/docs/publications/education).

Although most of the farming takes place in the rural areas where majority of the workers are women, they neither have full access to and control of land nor do they have access to capital or agricultural credit. They are also grossly under-represented in decision-making structures dealing with land as a resource, even at the local community levels. To access credit in credible financial institutions in Kenya, one needs to have collateral or other securities such as land title deeds, which most Kenyan women do not have, as culture does not allow them to own land. There is need, therefore, for the government to look into legal structures and policy frameworks that discriminate against women in regard to land ownership and access to credit facilities with the view of repealing them. *(www.ku.ac.ke/images/stories/docs/publications/educatio).*

The World Bank (2001) documented that ignoring gender inequalities comes at great cost to people's well-being and countries' abilities to grow sustainably and thereby reduce poverty. Not taking gender issues into account may result in projects that are technically successful but that negatively affect both women and children and augment social and economic stratification. As evidenced in country studies by the World Bank (2005): In Burkina Faso Shifting labor and fertilizer between men's and women's plots could increase output by 10 to 20 percent, in Kenya giving women farmers the same inputs and education as men could increase yields by more than 20 percent. In Tanzania reducing time burdens of women could increase cash incomes for smallholder coffee and banana growers by 10 percent and lastly in Zambia if women enjoyed the same overall degree of capital investment in agricultural inputs, including land, as their men counterparts, output in Zambia could increase by up to 15 percent.

2.3 Gender disparity on access to and control of productive resources

Gender disparity on access and control of productive resources has been more pronounced in developing countries where men have more control over user rights to productive resources as compared to women and their children. The inadequate user rights by women limit their land productivity potential. In line with women's empowerment in agriculture is control over decision making on land use which according to Allendorf (2007) is the main source of livelihoods as well as power and status. Mutangadura (2004) emphasized the importance of land to women's economic empowerment. This is the case especially in countries that depend on agriculture for their livelihood and Sub Saharan African countries are not exceptional.

According to the Kenya National Development Plan article on gender equality in agriculture and development (2001-2006), women are not often targeted by the development agencies. The

article further says that women tend to use informal channels family/friends to access credit as the existing structures have not provided a service that they find accessible(KNDP, 2006).

Vedavali and Sharma (1997), bring out religion as a factor which prevents women from accessing capital. Religious concept of purity and pollution does not allow women from engaging in commercial activities such as agriculture. This state is in contradiction with the states put forward by Sangeeta, (1996) who holds that the increasing realization of the critical role of agriculture and of the fact that empowerment of women is necessary for bringing about sustainable development at a faster pace.

A study by FAO (1996) focused on credit schemes in Kenya, Malawi, Sierra Leone, Zambia and Zimbabwe found that women received less than 10% of the credit for smallholder and only 1% of the total credit to agricultural sector.

Improving the access of rural female farmers to productive resources such as land, water and finance can play a significant role in enhancing female farmers' productivity, food security and sustainable development. In addition, access by female farmers' to agricultural services such as credit, enables them to manage their environmental and socio-economic challenges in agriculture on a sustainable basis, (Ogato, et al 2009).

It is often assumed that security of land tenure will enable the rural poor especially women to improve their livelihoods as well as increase their food supplies, raise rural employment and foster more sustainable agricultural practices. Secure land rights are said to have a significant positive impact on the alleviation of poverty, as it gives the owners greater control over their labor, a rationale to invest in the land and crops, greater access to extension services and more bargaining power. In their quest for food security, the poor often have little

choice but to use their limited resources extensively. They are often forced to adopt survival strategies with short-time horizons due to factors such as their insecure land tenure rights, their limited access to financial services, their lack of access to information and lack of access to agricultural inputs. Although secure resource rights cannot guarantee sustainable land management, it can be a powerful incentive. Farmers with long term access to land have a greater incentive to sustain the land and develop ways of preserving and regenerating it, (FAO 1999).

Equal access to resources will raise total agricultural output in developing countries by 2.5–4 percent, thereby contributing to both food security and economic growth,(FAO, (2011). Data from the FAO gender and land rights database show that only 32 percent of individual holders of agricultural land in Malawi are women. Despite the significant numbers of matrilineal communities, gender inequalities in land access and ownership are overwhelming. Female-headed households and female operators had less land than their male counterparts – nearly half of female-headed households, compared to one quarter of male-headed households, have holdings of less than 0.5 hectare.

According research by Kabutha (1999),among small-scale maize farmers in Malawi, females own less land but still use about 10 percent less total labor per hectare than their male counterparts and much of that labor is supplied by children, who must work to make up the shortfall caused by their mothers' other duties.

Damisa and Yahana (2007), in their research, cited land tenancy as a factor that deters women and the youth from engagement in agriculture in Nigeria. In 1997 almost 43% of the female operated farms were less than 50 acres while only 285 of male operated farms were less

than 50 acres according to the same research. Even in pricing of land, gender was a key factor. Though there is unequal access, the general perception is that Kenyan women have no control.

2.4 Gender disparity on access to extension services

Effective land utilization requires proper knowledge and skills amongst the women farmers. Women would be empowered in a dynamic process that involves developing their capacity to ably participate in the economic and non-economic livelihoods (Syed, 2010). Despite the fact that women contribute more labor in agricultural production, they constitute a small minority of formal employees in this sector. A study in Tanzania in 1989, for instance showed that only 47 women were employed in the agricultural sector in the ministry's head office, compared with 80 men, of these employees not a single woman was a principal agricultural officer, Nguya (2000).

Olawe (1993) reported that lack of mobility, shortage of qualified female extension staff, lack of coordination between the unified extension systems and parallel extension services, inappropriate extension packages, lack of flexibility in extension strategies were the main constraints in extension services to women farmers.

Agricultural extension aims to increase farm productivity and improve the welfare of rural people by educating farmers on advanced farming techniques and promoting an innovative environment (FAO, 2009). Extension achieves this by linking researchers, government planners, non-governmental organizations (NGOs) and the private sector with farmers and offering an open platform for the exchange of ideas and services.

According to Okunade (2008) in his study on the importance of agricultural economics and extension, in Osun State of Nigeria, exposed that neglect of women from extension services

in the past have made agricultural extension be focused on women. He further says that this neglect has led to low productivity of output in agriculture. In his findings, he suggests that extension services should be made cheaper for greater accessibility by women (Okunade, 2008).

In order to encourage intensive farming and increased productivity, Kenya established a broad network of agricultural and livestock extension services for reaching out to small scale farmers. Such services often fail to reach the women farmers' especially poor female farmers because of the way they are targeted and organized with 'Leading farmers' hosting agricultural demonstrations. Hence the current system of offering extension services can be said to be gender blind. Currently female extension service officers only account for 27 percent of the total employment of extension officers (USAID, 2007).

Damisa (2007) in a study on women's participation in agricultural productivity established women's extension index at 2,109. They emphasized that women farmer who has contact extension agents will tend to have better access to information technology which raised their level in the agricultural productivity.

According to a study done in Kenya, Saito et al (1994) recorded 9 extension visits for women against 12 for men. The results revealed that targeting men for extension education is based on erroneous assumptions, one that men are farmers and secondly, that whatever they learn will effectively shared with members of the family. In Kenya, extension services have been decentralized to the division level. Decentralization of agricultural extension services is aimed at improving farmer's access to these services. However the success of agricultural extension decentralization has been hindered by accessibility to all farmers, majority which are women. Employment in the ministry of agriculture in Kenya has also been gender biased with women only accounting for only 37 percent of the total employment as indicated in the table below:

Table 2.4.1 Employment in the ministry of Agriculture (Kenya)

Job group	Female	Male	Total	% Female
P and above	35	266	301	11.6%
J-N	394	2157	2551	15.4%
H and below	2162	2062	4224	51.2%
Total	2591	4485	7076	36.6%

Source; Min of gender May 2009

According to table 2.4.1 above, women account for about 37 percent of the total employment in the ministry. Despite the fact that the proportion of women is slightly above the required 30 percent, women are mainly concentrated at the lower job group levels that are not key to policy formulation as compared to 11.6 percent in the job group P and above and this hinders their involvement in formulation of policies that are relevant to streamlining gender in the agricultural sector.

Sangeeta (1996) in his study role of women in smallholder rain fed agriculture explains that women play a very important and major role in crop and livestock production but not much has been done to modify the approach and contents of training and extension programs.

Agricultural extension strategies traditionally have focused on increasing production of cash crops by providing men with training, information, and access to inputs and services. This male bias is illustrated in farmer training centers, which have been established to provide residential training on technical subjects. Most do not provide separate washing and sleeping accommodations for men and women and do not provide facilities for the care of babies or young children, factors which may prevent women from attending the centers. Second, women's daily workloads do not usually allow them to be absent from home for residential training; even

attending short courses may cause insuperable problems in arranging substitute care for children or the home. And third, even where attendance of women is quite high as a proportion of the total, women are given instruction mainly in home economics and craft subjects, not technical agriculture. Further, in the overwhelming majority of countries, extension services have been staffed predominantly by men. Only in countries such as the Philippines have women field staff been deployed in sufficient numbers and with sufficient resources to become effective agents of change among women farmers. (www.fao.org/docrep/W5830E/w5830e0b.htm).

According to Davis and Place (2003), there has been a new approach to provision of agricultural extension to farmers. Farmer Field Schools Approach. Groups meet under facilitator during certain periods of crop cycle. This method utilizes the FAO (2001) adult based learning to make Kenya farmers learn through experience. They say that these systems have worked well but more on the side on men than women who have been pegged with domestic chores. According to FAO (2008) report, agricultural extension has highlighted a number of weaknesses in reaching rural women and the youth. Most extension services have been devoted to farmers who own land and are willing and able to obtain credit and invest in the inputs and technological innovation. The study in Cheptais is set out to confirm the unfairness of engendered extension services. A report by FAO (2008) suggested that the extension service, should be more gender-sensitive when organizing extension activities, so that women farmers have full and appropriate access to extension meetings, demonstrations, field days and other activities. The report further suggests that extension workers should motivate women to attend gender neutral extension activities.

2.5 Strategies to address gender disparity to influence smallholder agricultural production

The World Bank has promoted several initiatives towards women's emancipation from the structures that marginalize them. One such initiative is the Gender Action Plan which focuses on integrating women as ultimate clients into agricultural projects to enhance supply responses in times of crises (World Bank, 2010). The initiative achieves this by among other things promotes women's access to factors of production like land, agricultural inputs and finance. Positive trends have been reported by Buvinic (2010) that there have been significant improvements in land productivity in the Ethiopian rural land certification project. The project was promoting joint land titles between men and women which increased women's power on decision making.

The World Bank recognizes that strongly held beliefs that influence people's attitudes and behaviors related to gender identity needs more time to change. The Beijing platform for action in 1995 adopted gender mainstreaming as a global strategy to achieve gender equality (United Nations, 2002). This strategy was established on the basis of ensuring effective achievement of development goals through integrating gender perspectives in the development process. Another response to the plight of women farmers is the convention for the elimination of discrimination against women (CEDAW). The convention promotes their access to land, credit and income. However, there is slow progress though most countries have ratified this convention. The slow progress could be attributed to the inadequate challenge to the structures and institutions that have been socially constructed and sustained which promotes male dominance. This response together with the Beijing Platform for Action mutually reinforces each other in achieving gender equality and empowerment of women (United Nations, 2010).

It is there very important to empower women and the youth to transform the unequal relation. FAO asserts that “empowerment” cannot be given; it must be self-generated, by facilitating women’s access and control to enabling resources which allow them to take greater control of their lives. The GAD approach requires that social, political and economic structures and development policies be re-examined from the perspective of gender relations (FAO, 1997).

In developing countries a factor influencing women involvement in agriculture is the issue of access to markets. FAO, IFAD, & World Bank (2009) noted that for sustainable livelihood, access to agricultural markets should be enhanced. The study would find out if market access is a problem that farmers in Cheptais encounter. This is so because even if there is an increase in production by women through other agricultural initiatives like the Agriculture subsidies but if women do not have access to markets then they will have nowhere to source income or factors of production. Kabeer (2000) observed that access to market increases women’s self-confidence and enhances their control over loans. Agricultural extension services designed to link women to agricultural markets would motivate them to actively participate in market oriented farming. Lack of market is a major problem affecting women farmers in Cheptais with brokers taking advantage to exploit farmers.

2.6 Theoretical Framework

According to Kombo and Tromp (2006), theoretical framework is a collection of interrelated ideas based on theories. Theoretical framework accounts for and explains the phenomena attempting to clarify why things are the way they are, based on the theory. This study was modeled on patriarchy theory as suggested by Juliet Mitchell (1975). The theory is a set of social relations between men and women, which have a material base and which though

hierarchical, establish or create interdependence or solidarity among men that enable them to dominate women. It is system of male authority which oppresses women through its social, political and economic institutions. The material base upon which patriarchy rests lies most fundamentally in men's control over women. Control is maintained by denying women access to necessary economically productive resources and by restricting women's sexuality. The theory describes the totality of oppressive and exploitative relations which affect women.

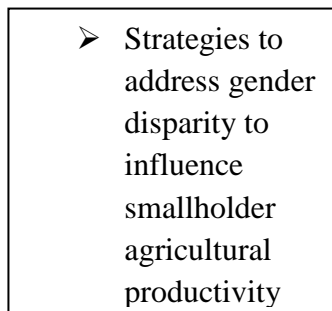
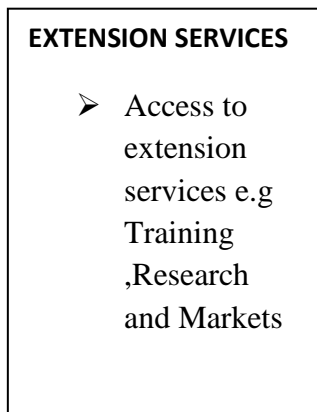
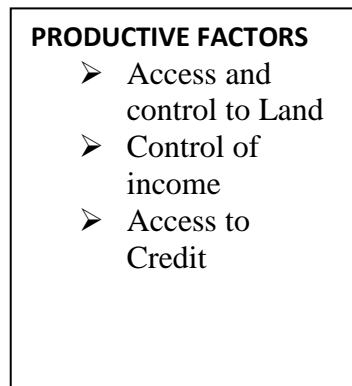
Applying the theory to the study, gender –role stereotypes in access to and control of productive resources and critical information significantly influence woman's advancement in smallholder agricultural productivity. Women in Africa and specifically in Kenya do not have a say over land as a factor of production despite the fact that they are farm caretakers, men are the majority land holders.

2.7 Perceived Conceptual Framework

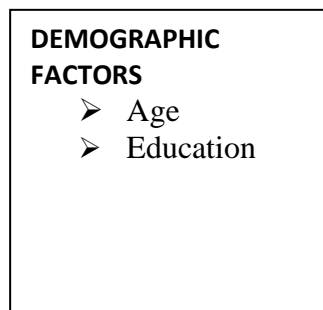
This study was guided by the following conceptual framework.

Figure 2.1 Conceptual framework

INDEPENDENT VARIABLES



MODERATING VARIABLES



DEPENDENT VARIABLE

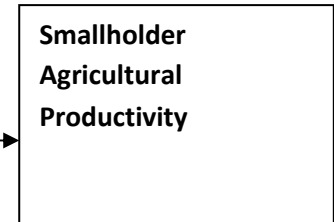


Figure 2.1: An illustration of the Relationship between gender disparity variables and Agricultural productivity.

2.8 Operational definition of variables under the conceptual framework

Objective /research question	Type of variable	indicators	Level of scale	Data collection tool	Data analysis method
To investigate the extent to which gender disparity on access to and control of productive resources influence agricultural production among smallholder farmers in Cheptais division.	Independent Gender based Inequalities to access and control of productive resources	National gender policy of 2000 National commission on gender and development	Ordinal	Structure and semi structure questionnaire	Mean, Mode, Median and cross tabulation
To establish the level at which gender disparity on access to extension services influence agricultural production among smallholder farmers in Cheptais division	Assessment of the level of disparity in access to extension services	Gender balance in extension meetings	Ordinal	Structured and semi structured questionnaire	Cross tabulation
To identify strategies that can be used to address gender disparity so as to influence agricultural productivity among smallholder farmers in Cheptais division	Assessment of gender related strategies that influence agricultural productivity	Stated strategies.	Nominal	Structured and semi structured questionnaire.	
	Dependent Agricultural productivity	Level of agricultural productivity	Ordinal	Structured and semi structured questionnaire	Mean Cross tabulation

2.9 Knowledge gaps

Though various studies have been undertaken in this area in Kenya and other parts of the world including studies by Venkareswaran (1992) in India titled, *Living on the edge: Women environment and development*, Ogato et al (2009) in Ethiopia-*Improving gender access to productive resources: a case study of three rural communities in Ambo district in Ethiopia* and Saito et al (1994) in Kenya, *Raising productivity of women farmers in sub-Saharan Africa*. The researcher classified this as a virgin territory for the best of his knowledge, not many meaningful ventures along similar lines have been carried out in Kenya and considering the pathetically glaring gender inequality coupled with various gross instances of women rights violations of all kinds and intensities in Kenya , the need for present study becomes even more marked.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter specifically addresses in detail a description of how data was obtained, processed, analyzed and interpreted to fulfill the research objectives. The methodology elements herein include the research design that was applied; target population; sampling design and procedures; the types of data; research instruments; as well as data processing and analysis techniques. Details of these were discussed in the succeeding sections.

3.2 Research Design

The research design used in the study was descriptive survey design. The aim was to collect information from respondents on their attitudes and opinions in relation to gender disparity and its influence on smallholder agricultural productivity in Cheptais division. Oso and Onen (2009) point out that this design presents oriented methodology used to investigate populations by selecting samples to analyze and discover occurrences. It describes events as they are. It facilitates rapid data collection and ability to understand population from sample. According to Kombo and Tromp (2006), descriptive survey design is used in the preliminary and exploratory studies to allow the researcher gather information, summarize, present and interpret it if for the purpose of clarification. The research design adopted would allow the researcher to describe record, analyze and report conditions that exist or existed before. It would also allow the researcher to generate both numerical and descriptive data that is meant to assist in measuring correlation between the variables.

3.3 Target Population

The target population of the study consisted of 6000 smallholder farmers who were currently involved in agricultural production. These included 2088 farmers from Cheptais location, 1055 from Chepkube location, 2013 from Sasur location and 844 farmers from Chesikaki location. The main focus was smallholder farmers who are being affected by gender inequality issues.

3.4 Sample size and sample selection

In this section, sample size and sample selection will be discussed.

3.4.1 Sample size

A sample is part of the target population that has been procedurally selected to represent it (Oso and Onen, 2009). The researcher targeted 361 respondents of the target population of 6000. The following formulae was used to determine the sample that was used during the study

$$n = \frac{NZ^2 \times 0.25}{d^2 \times (N-1) + (Z^2 \times 0.25)}$$

Where

n=Sample size required

N= Total target population

d= Precision level (usually 0.05 or 0.01)

Z= Number standard deviation units of sampling corresponding to the desired

Confidence level (Cole 2009).

Substitution

N=6000

$$d=0.05$$

$$Z= 1.96 \text{ (Refer to Appendix VI)}$$

The confidence level used was 95% and 0.05 precision levels

Therefore

$$n = \frac{6000 \times (1.96)^2 \times 0.25}{0.05^2 \times (6000-1) + (1.96^2 \times 0.25)}$$

$$n = \frac{5762.4}{15.9579}$$

$$n = 361.1$$

$$n = 361$$

The sample size was 361 smallholder farmers and to ensure equal representation in-terms of gender, the research involved 180 women and 180 men.

3.4.2 Sample Selection

To obtain an appropriate sample size for each stratum (Location), the researcher used the following proportionate stratification formula provided by Stattek (2012):

n_h - Sample Size for the stratum h

N_h - Population Size for the Stratum h

N- Total population size

n- Total Sample size

Hence, sample size for the smallholder farmers' representatives was

$$n_h = (N_h/N) * n$$

$$n_h = (2088/6000) * 361 = 125.6 = 126$$

Table 3.4. Sample size table

Location	Total number of farm families in the stratum	Sample size
Cheptais	2088	126
Chepkube	1055	63
Sasur	2013	121
Chesikaki	844	51
Total	6000	361

n=361

The sample consisted of 361 respondents selected as shown above from the target population of 6000 smallholder farmers. In this study the confidence level will be 95% and error of margin will be 5%.The study will resort to simple random sampling since it is easy to generate results of the random numbers very quickly and it is not prone to bias. During the research the researcher liaised with the village elders in order to be able to reach the sampled farmers.

3.5 Research Instruments

This study used closed and open –ended questionnaire to administer to the sample since time was limited and information needed could easily be described in writing. The open-ended questionnaire would help elicit a lot of information from the respondents without restricting their responses. Face to face interview was also used to clarify any ambiguities in information gathered using the instruments.

3.5.1 Pilot testing

Nachmias and Nachmias (1996) noted that pilot-testing is an important step in the research process because it reveals vague questions and unclear instructions in the instruments. It also captures important comments and suggestions from the respondents that enable the researcher improve on the efficiency of the instruments, adjust strategies and approaches to maximize response rate.

Pre-testing and practical interviewing exercise was conducted by the researcher together with the research assistants in the neighboring Kopsiro division. A total of 10 interviews were done. The data from the pilot testing was not included in the final analysis but was used to make the research instrument better by rephrasing and reconstructing the set of items in the instrument.

3.5.2 Validity of the instrument.

Validity is the degree to which results obtained from analysis of the data actually represents the phenomena under the study. The researcher ensured content validity by engaging the services of the research project supervisor who is a professional in the field of gender related issues in agricultural production. The supervisor assessed what concept the instrument was trying to measure and determined whether the set of items accurately represented the concept under study. Making of the necessary amendments was then carried out to ensure questions got the right responses.

3.5.3 Reliability of the instrument

Reliability is a measure of the degree to which a research instrument yields consistent results or data after repeated trials. It is influenced by random error. As random error increases, reliability decreases. Random error is the deviation from a true measurement due to factors that

have not been addressed by the researcher. Errors may arise from inaccurate coding, fatigue and bias, Mugenda Mugenda, (1999).

The reliability of a research instrument concerns the extent to which the instrument yields the same results on repeated trials. Although unreliability is always present to a certain extent, there will generally be a good deal of consistency in the results of a quality instrument gathered at different times. The tendency toward consistency found in repeated measurements is referred to as reliability (Cook et al, 2007).

To measure reliability, the researcher used test-retest method which involved 10 respondents from the same district but who were not be part of the population under study by administering the same instrument twice to the same group of participants after some two weeks' time lapse. The following procedure was used; selection of appropriate group of participants, administering the questionnaire to the group, keeping the entire initial conditions constant, interviewing the participants again the second time after two weeks and finally analyze the two different results. If the results generated similar results, that was an indication that the instruments was reliable to be used for data collection. The score obtained were correlated to get the coefficient of reliability. The correlation obtained was 0.931, 0.895 and 0.867 respectively for smallholder farmers' questionnaire. This revealed a high degree of reliability of the research instrument. For research purposes, a minimum reliability of 0.70 is required (Siegele, 2002). A reliability of 0.70 indicates 70% consistency in the score that are produced by the instrument.

3.6 Data collection procedures

This is the process of gathering factual materials as a basis of analysis. This study gathered data required to achieve the required objectives. For triangulation purpose, both primary and secondary data was gathered. Primary data was collected with the help of closed and open

ended structured questionnaire. Secondary data was obtained from project manuals, journals and books. The researcher developed a proposal for a period of about four months under the guidance of the supervisor. Permission to collect data was then sought from the National Council of Science and Technology. The research instrument was first piloted to ensure its validity and reliability. Data was then collected with the help of research assistant after which the raw data was analyzed, interpreted and presented.

3.7 Data analysis techniques

The raw data collected was first cleaned up and edited. This involved a careful scrutiny of the completed questionnaire to ensure that the data was accurate, consistent with other facts gathered and uniformly entered. Editing of the data was done in order to correct errors and omissions where possible. Secondly the researcher classified and coded the information into frequency distribution table in order to allow further analysis. The data was then analyzed to show distribution by use of descriptive statistics which included measures of central tendencies by use of Statistical Package of Social Sciences (SPSS) software. For qualitative data, the use of content analysis to identify patterns, themes was applied.

3.8 Ethical considerations

Mulwa (2006) describes ethical standards of behavior as practical procedure that researchers are expected to follow. Saunders, Lewis and Thornhill (2007) on the other hand relates research ethic to questions about how research topic is formulated and clarified, how research are designed and finally how researcher gains access, collect data, process, store and write up findings in a moral and responsible manner.

The first ethics on the procedure of entry into the community was by seeking a permit from the ministry of Agriculture to conduct the research, followed by letter of transmittal to the group that participated in the research.

The major ethical issues to be considered during research are informed consent, privacy and confidentiality, anonymity and research responsibility. Informed consent was managed during the study by making sure that respondents were adequately informed about the purpose and procedure of the study. Respondents were informed that their participation in the research was voluntary. Privacy, Confidentiality and anonymity of the respondents were maintained by not recording the identity such as name of the respondent during the interview. Confidentiality was maintained by not sharing private information collected from the respondents and by being honest and open to the respondents. Before embarking on the field, the researcher sought permission from the National Council of Science and Technology, the Cheptais district commissioner, Cheptais district education officer and the Cheptais division Agriculture officer. Also, prio arrangements were made with the respondents to administer the questionnaire.

3.9 Summary

In this study on the influence of gender disparity on agriculture production among smallholder farmers in Cheptais division, a descriptive survey research design was used. Stratified sampling was done in order to give every category of respondent in every location an equal chance of being selected. Questionnaires were used as instruments of data collection, which were pre-tested to check their validity and reliability. The raw data collected was processed and then analysed by use of descriptive statistics using Statistical Package for Social Science (SPSS).

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter presents the summary of the analyzed data. The results are presented based on the objectives of the study, which aimed at finding out how gender disparity influences agriculture productivity among smallholder farmers in Cheptais division. In order to put the results of the study into perspective, the findings were organized under the following categories: demographic, gender relations in access and control of productive resources, gender relations in access to extension service and strategies of addressing gender disparity to influence agriculture production. The data was analyzed with the help of Statistical Package for Social Sciences (SPSS). The data analyzed is presented using tables.

4.2 Response rate

This section presents the response rate for the respondents who were targeted during the study. Primary data was sourced through administration of questionnaires to farm families in Cheptais division. Out of the 361 questionnaires issued, all were returned, thus a return rate of 100%. This only included the questionnaires that were administered to smallholder farmers. This data was collected by research assistants who directly administered questionnaires to the respondents. The response rate was illustrated in table 4.1.

Table 4.1 Questionnaire Response rate

Administered	Respondent to and returned	Percent (%)
361	361	100

n=361

Of the 361 interviewees targeted in the study, all the 361 respondents were obtained (100%). This was achieved because the researcher and the research assistants clearly explained the research objectives and directly administered the questionnaires to the respondents.

4.3 Demographic Characteristics of the respondents

Demographic information was collected in relation to age, gender, level of education and marital status. These results are presented in the following sub-sections.

4.3.1 Distribution of Respondents by Gender and Age.

The study sampled 361 respondents all over Cheptais division of Mt. Elgon district. 182 female and 179 male respondents were administered to the questionnaire and interviewed. The ages of respondents are shown in the table 4.2.

Table 4.2: Ages of Respondents by Gender

Age Bracket	Gender of Respondents			
	MALE		FEMALE	
	Frequency	Percent	Frequency	Percent
18-24	1	0.3	5	1.4
25-30	15	4.2	15	4.2
31-35	22	6.1	17	4.7
36-40	55	15.2	75	20.8
41-45	52	14.4	48	13.3
45- Above	34	9.4	22	6.1
Total	179	49.6	182	50.4

n=361

According to the findings in table 4.2, majority of the male and female respondents fall between the ages of 36-40. However more women are found in this category 75 (20.8%) compared to men 55(15.2%). The number of female farmers involved in agriculture reduces as the age progresses, ages between 41-45 years there are 48(13.35) female as compared to 52(14.4%) and for ages above 45 years there, there were 22(6.1%) female as compared to 34(9.4%) male. This indicated that women farmers are more actively involved in agriculture at lower ages as compared to their male counterparts. The relationship in age is that the number of farmers reduces as the age progress for both male and female. However, for the female respondents, the number diminishes faster as the age advance. Age being an indicator of experience in farming shows that women are not experienced farmers hence could be a contributor to low productivity by female farmers.

4.3.2 Level of Education Attained by the Respondents

The study sought to know the level of education as it believed that those with higher level of education would have more exposure to what is emerging in agricultural innovations resulting into higher productivity per acre and that the level of education dictates the ability of a person to understand and assimilate concepts and adopt new technologies. On the level of education, the respondents were asked to indicate the highest level of education attained. The respondents were presented with a question asking them to state the highest level of education they have attained and their responses were summarized in the Table 4.3.

Table 4.3 Distribution of respondents level of Education

Level	MALE		FEMALE	
	Frequency	Percent	Frequency	Percent
No education	10	2.8	34	9.4
Primary	86	23.8	119	33
Secondary	64	17.7	18	5.0
Diploma	18	5	11	3.0
University	1	0.8	0	0
Total	179	50.1	182	49.9

n=361

The results in table 4.3 show the gender representation of education level of the respondents. The study found that of the 361 respondents who participated in the study majority

of the female respondents 119(33%) had primary education as compared to 86(23.8%) of the male. 43(9.4%) of the female had no education as compared to 10(2.8%) of the male, only 18(5%) of the female had secondary education while 64(17.7%) of the male had secondary education, 11(3.0%) of the female had diploma as compared to 18(5.0%) of the male and finally none of the female respondent had university education as compared to 1(0.8%) of the male who had attained university education. These high number of female respondents with no education 10 (9.4%) and primary education 119(33%) is a clear indication of gender bias in access to education to females as compared to males. This concurs with World Bank (2002) that women are more vulnerable because society does not give them equal access to education as male because of social construct and stereotyping that exist in many African societies. The low number of female accessing education shows that women are unlikely to adopt technical farming methods that guarantee higher productivity. Equally they are unlikely to access markets that require technical consumer preference analysis.

4.4 Gender disparity on productive factors and how they influence smallholder agricultural productivity

Productive factors that were investigated and discussed in this section included: access to land, control of land and access to credit facilities.

4.4.1 Awareness about gender Disparity Issues

In order to understand the level of awareness on gender disparity related issues, the respondents were asked to give their views on how they understood about gender disparity issues that affect smallholder agricultural production. The respondents were asked to state whether they were aware or not aware about gender related issues. And the responses obtained are contained in the Table 4.4 below.

Table 4.4 Awareness about Gender disparity issues

Response	Number	Percent
Aware	299	82.8
Not aware	62	17.2
Total	361	100

n=361

From the table above, 82.8% of the respondents agreed that they were aware of the gender disparity issues while 17.2% were not aware. This indicates that majority of the people in society are now aware. This indicates that gender issues are gaining popularity in the country and are clear to a larger part of the population. This concurs with status of women Canada (2001), which stated that gender issues are rapidly becoming part of most development projects and that all policies and activities have a gender perspective or implication, policies and programmes become more effective when the impact of gender is considered and addressed and that gender disparity results into low productivity. A smaller group (17.2%) indicated that they were not aware of gender disparity issues that influence agricultural production. This concurs with Hannan(2001) who stated that a number of serious misconceptions around gender related issues do exist hampering effective implementation of gender related policies and strategies. This is sometimes linked to the lack of understanding of basic concepts such as ‘gender equality’. Johnsson-Latham(2004) similarly indicated that the concept of gender is unclear and misunderstood by many.

4.4.2 Gender disparity on access to land

The study sought to establish the level of gender disparity when it came to access to land by the respondents. This was important since access to land ensures that land is put into productive use hence being able to improve the living standards of the people. Farmers were asked to state if gender disparity on access to land was an issue or not an issue in Cheptais division and the responses obtained are contained in table 4.5.

Table 4.5 Gender disparity on Access to Land

	ACCESS			
	YES		NO	
	Frequency	Percent	Frequency	Percent
Male	77	21.3	102	28.2
Female	54	15	128	35.5
Total	131	36.6	230	63.4

n=361

The results from table 4.5 show that majority of genders, 35.5% of female and 28.3 % of the male said that there were no gender disparities when it came to access to land, but a higher percentage 21.3 % of the male as compared to 15% of the female agreed that there was gender disparity in access to land. These is a clear indicator that women have more access to land as compared to their male counterparts hence clearly indicating a higher number of female involved in agricultural productivity among smallholder farmers. This concurs with Amali and Ebele (1998) that women's involvement in farm work is higher as compared to the male.

4.4.3 Gender disparity on control of land

In order to establish the patterns of land control and decision making on land use, it was necessary to examine the respondents opinion in relation to control on land. Understanding the land control patterns could help in establishing the patterns of authority on how land was used and relate it to productivity per acre of land. The respondents were asked to state if they had control over land or not and the responses obtained from the farmers are contained in table 4.6 below.

Table 4.6: Gender disparity on control of land.

	Control of land			
	YES		NO	
	Frequency	Percent	Frequency	Percent
Male	144	39.9	35	9.7
Female	41	11.4	141	39.1
Total	185	51.2	176	48.8

n=361

The results from table 4.6 show land control by the respondents. The study revealed that women have little control over land. The study findings show that 144(39.9%) of the male respondents had control on how land is used as compared to 41(11.4%) of the female respondents. This concurs with Kabutha (1999) that among small scale maize farmers in Malawi, females own less land. All the respondents in the study concurred with the fact that land ownership is very vital in agriculture. The pattern of control over land showed a complete contrast to land access where both genders especially women had access to land. Women have access to some resources but little control over them: on the other hand, men control almost all

resources. Lack of control to land excludes women from decision making process at the household hence productivity is negatively affected if the control of critical resources is monopolized by one gender.

4.4.4 Relationship between control of land and productivity

In order to establish the relationship between control of land and productivity, tabulation was done for those male and female who had control over land alone and the level of productivity realized on the acre farm of land. The results are as shown in the table below.

Table 4.7 Gender relationship between control of land and productivity

productivity (kg)	MALE		FEMALE	
	Frequency	Percent	Frequency	Percent
<1000kg	90	62.5	9	22
>1000kg	54	37.5	32	78
Total	144	100	41	100

The results indicated that 32(78%) of the 41 women who had control over land registered an average productivity of above 1000kg as compared to 54(37.5%) out of 144 of the male who achieved a yield of above 1000kg. This concurs with Kabutha (1999) that women can be better agricultural producers if given the same access and control of productive resources as their male counter parts. The results can also be attributed to the fact that women spend most of their time in farming especially when they have control over land as compared to male hence the higher productivity in female controlled farms. The skewed control of productive resources has been a major hindrance to the realization of most development objectives set by various projects as

gender related issues are rarely enshrined in project cycle during the initial planning and design stage.

4.4.5 Gender disparity on control of income from the farm

In order to establish gender disparities in control of income from the farm, the study sought to find out whether men and women had equal representation when it came to control of income from the farm. In this study the respondents were asked questions regarding who had control over income from the farm. The respondents were required to state Yes or No over control of the income. The response obtained is contained in the table 4.8 below.

Table 4.8 Gender disparity over control of income from the farm.

	Control over income			
	YES		NO	
	Frequency	Percent	Frequency	Percent
Male	173	47.9	6	1.7
Female	79	21.9	103	28.5
Total	252	69.8	109	30.2

n=361

From the findings, 47.9% of the male had control over the income from the farm while only 21.9% of the female had control of the income from the farm. While the number percentage of women accessing land for farming is higher, control of income from the farm has been monopolized by the male gender. This concurs with Majekodunmi (2006) that social structures are patriarchal and endow men with all decision making and control of vital resources. Lack of control of income from the farm discourages women from effectively participating in agricultural activities hence negatively affecting agricultural productivity. Person correlation coefficient of

0.499 at 99% confidence level and 0.01 precision level revealed that there was a positive correlation between control of income from the farm and land productivity.

4.4.6 Gender disparity on Access to Credit Facilities by the Respondents

Credit facility being an important factor in the acquisition of farm inputs and general farm operations, the study sought the opinion of the respondents on their ability to access credit. The respondents were required to state either a Yes or No on the ability to access credit facility. The response was shown in Table 4.9.

Table 4.9 Access to credit facility by the respondents

	Access to Credit			
	YES		NO	
	Frequency	Percentage	Frequency	Percentage
Male	35	9.7	144	39.9
Female	47	13	135	37.4
Total	82	22.7	279	77.3

n=361

The results showed that higher number of women 47(13%) indicated that they had access to credit as compared to men with only 35 (9.7%). Despite the fact that men had a higher percentage of control and ownership of land, the higher percentage of women accessing loans could be explained by the fact that many women have joined women groups such as Nombela women group who have established Village Savings and Loan Associations (VSLA) that lend to members. But overall the ability to access credit facility by both genders is very low and many of

the respondents attributed this to lack of information about agricultural loans, lack of loan security and long distances to places of accessing loans. Most of the female respondents mentioned that lack of security as some reason that limited their access to bank loans hence the option of VSLA that require no security for lending.

4.5 Gender disparity and access to extension service

The second objective of the study was to establish the level at which gender disparity on access to extension service influence agricultural production among smallholder farmers in Cheptais division. The factors that were investigated and discussed in this section included: access to extension service and access to markets.

4.5.1 Level of gender disparity on access to extension service

Knowledge on improved and modern agricultural technology and innovations can only be availed to smallholder farmers through targeted extension services. In this study the respondents were asked questions regarding individuals' ability to access extension service. The respondents were required to state whether they had access to extension service or not. The response was as indicated in table 4.10.

Table 4.10 level of Gender disparity on access to extension service

	Access to extension service			
	YES		NO	
	Frequency	Percentage	Frequency	Percentage
Male	116	32.1	63	17.5
Female	88	24.4	94	26.0
Total	204	56.5	157	43.5

n=361

From the table above, 32.1% of the male respondents had access to extension service while only 24.4 % of the female respondents had access to extension service. This concurs with FAO (2008) that most extension services have been devoted to farmers who own land and are willing and able to obtain credit to invest in agricultural technology and that women are overburdened by both productive and reproductive roles that hinder them from attending training. Lack of access to extension service negatively affects agricultural production and these was shown by determining the correlation coefficient of level of agricultural productivity and access to extension service which was found to have a positive correlation coefficient of .645 at 99% confidence level and 0.01 precision level. The low percentage of both genders accessing extension services could be attributed to poor infrastructure that makes the area inaccessible.

Access to extension service is important in ensuring that farmers are equipped with the latest sustainable land management practices and technological innovations that enhance productivity. The fact that access to extension service and land productivity showed a positive correlation coefficient of .645 is a clear indicator of the need to ensure that extension service actually reaches all those who need it. The low level of women accessing extension service is an

indication of lack of gender based policies that address gender related issues in development projects or if they exist, they have not been effectively utilized. Clisby (2005) points out that much more work still needs to be done to ensure that gender mainstreaming is translated into tangible results on the ground.

4.5.2 Gender disparity in access to market for farm produce.

Market access by smallholder farmers is a key incentive in promoting agro-enterprise among farmers. The inability to access market makes many farmers to sell their produce at prices that will not cater for production costs and their profits. This affects most of the farmers and at the end of the day they find themselves being disinterested in some type of farming yet this farming when well-planned can fetch a lot of money to the farmers. The study sought to understand the level of gender disparity when it came to access to markets. The respondents were required to state if they had access to market or not. The responses were as indicated in table 4.11.

Table 4.11 level of Gender Disparity on access to market

	Access to Market			
	YES		NO	
	Frequency	Percentage	Frequency	Percentage
Male	110	30.5	69	19.1
Female	89	24.6	93	25.8
Total	199	55.1	162	44.9

n=361

Though the study recorded a low level of disparity in access to market for farm produce due to external factors such as high transport costs, impassible rural roads, low prices in

comparison to production costs, sole farmer marketing and lack of planned production, male recorded a higher percentage of accessibility of 30.5% as compared to female who recorded an accessibility rate of 24.6%, as shown in table 4.11.

The low level in access to market makes many farmers to lack where to sell their produce at prices that will cater for production costs and their profits. Since majority of middlemen /produce traders in the area are of male gender, these could be a factor contributing to a low level of female accessing market as deep rooted gender stereotyping especially among the Bukusu and Sabaot communities that constitute the majority in the area do not allow freedom of communication between married women and strangers of male gender. The inability to access market affects most of the farmers and at the end of the day they find themselves being disinterested in some type of farming or some commodities yet these commodities when planned well could fetch a lot of money to the farmers.

4.5.3 Influence of gender disparity on land productivity

The study further analyzed through cross tabulation the association of gender disparity and the overall land productivity in the area. The findings were as indicated in table 4.12.

Table 4.12 Representation of level of productivity by gender

Productivity (kg)	Productivity by gender			
	MALE		FEMALE	
	Frequency	Percent	Frequency	Percent
50-100	20	5.5	58	16.1
101-1000	94	26.0	79	21.9
>1000	65	18.0	45	12.5
Total	179	49.5	182	50.5

n=361

As indicated in table 4.12, male producing 1000kg and above were more 65(18%) , as compare to female 45(12.5%) and consequently the number of female farmers producing low level of productivity of between (50-100)kg was high 58(16.1%) as compared to 20(5.5%) of the male respondents. This was a clear show of the negative effect gender disparity has on smallholder land productivity.

4.6 Strategies that can be used to address gender disparity so as to influence agricultural Productivity.

It was considered prudent to ask the respondents the strategies that could be to address gender disparity. This was an open ended question with the respondents giving varied views on how the issue could be handled. 302 (83.7%) of the respondents indicated that there was need to carry out capacity development programmes that could educate people on the importance of gender equality on access and control of productive resources. This was due to the observation

that majority of the male especially in the Sabaot community still believe that women and the girl child have got no right when it comes to access and control of productive resources. Such capacity development programmes could educate the community on the importance of gender equality on house hold income and well-being of the family. 59 (16.3%) of the respondents were for the believe that to increase access to credit facilities by both the genders, there was need to promote formation of Village Savings and Loan Associations that could help members to access credit easily as compared to other financial institutions whose requirements are so stringent that most locals could not afford. The respondents also raised the issue of promotion of joint land holdings between the male and female genders. On access to extension service, the respondents noted that the extension services are demand driven and organized in farmer field schools which are far and normally done in the morning hours when majority of the female respondents are still involved in various activities in their homes. The respondents indicated that timing of extension services should be rescheduled to afternoon hours.

Lack of capacity development programmes, inadequate training on gender related issues and failure to recognize gender specific needs in developing extension training programmes were indicated as the main factors limiting effective reduction of gender disparity concerns. This concurs with Sedibelwana (2008) that gender related concerns in government projects are still facing serious challenges in relation to implementing gender mainstreaming as a tool to achieving gender equality and that there are still appears to be lack of common understanding within government departments on what gender mainstreaming entails.

4.8.1 Summary

The chapter has highlighted the major findings from the study. There was a high level in gender disparity in access and control of productive resources and access to extension service that negatively affected agricultural productivity in cheptais division. Control on how land is used indicated the least effect on variability on yield by 2.6% as compared to control of income which showed a 24.9% variability effect on land productivity while access to extension service showed 41.6% effect to productivity. Strategies to be used to address gender disparity to influence agricultural productivity included capacity development programmes, formation of Village Savings and loan Associations, and promotion of joint land holdings and rescheduling of extension times to encourage more women participation.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND

RECOMMENDATIONS

5.1 Introduction

In line with the objectives of the study, this chapter highlights a summary of findings, conclusions made on the findings and recommendations which are meant to ensure gender parity in access and control of productive resources to influence smallholder agricultural productivity

5.2 Summary of the Findings

The summary of findings were discussed as per the objectives under study

In relation to the first objective, the study found that there were gender disparity issues that existed among the respondents which negatively affected agricultural productivity and most of the respondents were aware of the issues. It was noted that Land ownership which affected authority on how land was used was highly gendered with a higher percentage of male 144

(39.9%) having the authority to control how land was used as compared to 41(11.4%) of the female. But a cross tabulation on those who owned land and productivity, female respondents who owned land produced more yield ,32(78%) out of 41 who had control over land produced more than 1000kg as compare to 54(37.5%) out of 144 male who had control over land. Control of income from the farm was also highly gendered with 173(47.9%) of the male respondents interviewed having control over income from the farm as compared to 79(21.9%) of the female respondents.

In regard to the second objective, the study found that the ability to access extension services was highly gendered with a higher percentage of male (32.1%) being able to access extension services as compared to 24.4% of the female respondent. The low percentage of female respondents accessing extension service was attributed to the many roles that women have to perform at home including both productive and reproductive roles. The timing of extension service sessions which is normally in the morning hours when many women are still involved in their home chores was also indicated as a factor contributing to low level of women attending extension meetings.

And lastly in regard to the third objective, the study further found out that there has been little capacity development programmes that could address gender disparity issues by the relevant line institutions. Most respondents attributed these to poor infrastructure in the area that hinder movement of the concerned individuals into remote parts of the division. However a few respondents maintained that the scheduling of trainings in the morning hours was hindering the

female respondents from attending the sessions since most of them were overburdened by home chores during the morning hours hence the need to reschedule the time for trainings. Some respondents advocated for joint land holdings that could promote equality in land use decision making.

5.3 Conclusions

These conclusions were drawn in line with the objectives of the study. In with the first objective, the study concludes that gender disparity on control of income from the farm had the greatest effect on overall land productivity as compared to having control on how land is used. It also concluded that majority of the respondents are well aware of gender disparity related issues in farm families and that women have got more access to land as compared to their male counterparts who would prefer accessing land during harvest time. The study also observed that though the relevant ministry has tried in incorporate gender related issues in its programmes, the strategies applied were not exhaustive enough. Availability of gender experts would help to guide farmers of further gender issues.

In relation to the second objective, the study concludes that majority of the respondents have got no access to extension service although women are the most affected with only 24.4% being able to access extension service as compared to 32.1% of the male respondents. Lack of access to these services means low productivity and these is caused by lack of access to new innovations and farm technology which is accessed through extension services. The fact that access to extension services could influence agricultural productivity variability by 41.6%, efforts should be made to ensure that more farm families access extension services in order to boost agricultural productivity.

In regard to the third objective, many of the strategies which were indicated by farmers such as capacity development programmes highlighting gender concerns, promotion joint land holdings, formation of VSLA and rescheduling of training time could easily be handled by the relevant ministries and NGOs operating in the area , if proper gender based policies were followed. Social and cultural factors that down grade women farmers to play subordinate roles really affect women involvement in agriculture. Numerous domestic chores and lack of spouses support makes women farmer to be overworked and thus lowering her productivity. Lack of sound gender sensitive policies has made it very difficult for women to rise and attain equity in the utilization of agricultural sector resources and opportunities. Policies that favor men have continued to render the woman farmer useless and incapable of forging ahead.

5.4 Recommendations

The study makes the following recommendations in line with the objectives of the study

Gender experts together with all those with information on gender mainstreaming in agricultural productivity should engage other stakeholders in sensitization and capacity development efforts. At the local level, those in the management should develop simple workable gender mainstreaming strategies. The relevant ministry should hold regular workshops to sensitize as many stakeholders as possible and promote public awareness on gender issues in development. In public Barazas (Community meetings) men should be taught on how to help in farm work and the benefits of equity in access and control of productive resources. Proper education and sensitization of men should be done to make them accept lending a hand in domestic work so that the women farmer is not overworked.

Extension service provider must develop gender sensitive curriculum that accommodate women and consider their work load of both reproduction and production. Gender needs should

be considered at all stages of any development project cycle. It is not enough to develop gender strategies at the end of project formulation, these issues need to be included from the start of the project which entails ensuring research questions address these concerns. More field schools should be developed to take extension closer to the farmers in the rural areas. Dealing with inequality in the field of agriculture should be the government's top priority and should be done at the national policy level. The government should employ affirmative action in the employment of agriculture teachers, extension officers and researchers to make sure that most women are employed in agricultural sector to spur up women participation.

The study indicates that for the mentioned strategies to be achieved, the government and all other stakeholders should sensitize all those in organization management that women should be empowered at all levels and funds be availed to train all employees on gender issues. Project managers and all those involved in project implementation should be trained on the most effective ways on integrating gender concerns in projects thereby ensuring that gender issues are well understood by all up to the grass root level. The disparity between male and female gender as regarding women involvement in agriculture will continue to be. Gender mainstreaming should start with the National government and county governments going down to village level in a move to eliminate all forms of discrimination. A massive gender mainstreaming exercise should be put in place by both governments. The county government of Bungoma and elsewhere should embark on an exercise of eliminating all factors that would cause inequality between female and male farmers.

5.5 Contribution to the body of knowledge

This study has contributed a lot to gender study as a body of knowledge. It has shown light on the dimension of engendered agriculture in Cheptais division. This explains the variation

that exists in agriculture due to gender disparity here and elsewhere and supplements the already existing literature and provide for the initial steps for intervention measures. This contribution of new knowledge can be noted in view of the study objectives.

Objective (s)	Contribution to the body of knowledge
<p>To investigate the extent to which gender disparity on access and control of productive resources influence agricultural productivity among smallholder farmers in Cheptais division.</p>	<p>The study shows that though women have almost an equal access to productive resources, the control of those resources is dominated by male. Out of the 361 farmers who took part in the study, only 41(11.4%) had control over land as compared to 144(39.9%) of the male respondent, but female member who took part in the study had more access to credit with 47(13%) of the female having access to credit as compared to 35(9.7%) and this was attributed to women being involved in VSLA that advance credit to</p>

members.

To establish the level at which gender disparity on access to extension service influence agricultural production among smallholder farmers in Cheptais division.

The study found out that out of the 361 respondents who took part in the study, only 88(24.4%) female were able to access extension service while 116(32.1%) of the male respondents were able to access credit. The low level of women accessing extension was attributed to women being overburdened by both reproductive and productive work and lack of gender related concerns in most extension activities.

To identify strategies that can be used to address gender disparity to influence agricultural productivity among smallholder farmers in Cheptais division

The study found out that 302(83.7%) of the respondents indicated the need to carry out capacity development programmes that would enlighten the community on the benefits of gender equality in sharing of resources while 59(16.3%) of the respondents were of the view that increased access to credit facility could only be achieved if farmers formed groups that could start VSLA to lend to members since there was very little attention by commercial banks and other loaning institutions in the division and those

who could afford to access commercial banks found the requirements for loan qualification so stringent that very few could qualify for a loan.

5.6 Areas for Further Research

For the purpose of enhancing research activities and general public awareness, other researchers and scholars' may carry out studies in the following areas:

- i) Analysis of factors promoting gender disparity in access and control of productive resources in Cheptais division.
- ii) Role played by extension service in reducing gender disparity in smallholder agricultural production in Cheptais division.
- iii) An analysis of factors that address gender disparity to influence smallholder agricultural production in Cheptais division.

5.7 Summary

The chapter has captured a summary of the major findings, a discussion of the findings based on the related literature, conclusions made on the findings and recommendations based on the conclusions. Finally suggestions for further research are given, made in line with the outcomes of the study.

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APPENDIX I: THE TRANSMITTAL LETTER

UNIVERSITY OF NAIROBI
P.O BOX 30197-00100 GPO
NAIROBI, KENYA
3/05/2013

TO

MR/MRS/MISS.....

Dear Sir/Madam

RE: **INFLUENCE OF GENDER DISPARITY ON AGRICULTURAL
PRODUCTION AMONG SMALL HOLDER FARMERS**

I am currently a student pursuing a masters of Arts Degree in Project Planning and Management at the University of Nairobi. I am carrying out the above study in your Sub-location as part of the requirements for the fulfillment of Masters of Arts Degree. The purpose of this letter is to humbly request you to participate in the study by completing the attached questionnaire.

All the information collected will be treated as strictly confidential.

Your cooperation and support in this study will highly be appreciated.

Yours

PHELIX BULUKU RAPANDO

L50/70206/2011

APPENDIX II: QUESTIONNAIRE FOR SMALLHOLDER FARMERS

The purpose of this questionnaire is to collect data on the influence of gender disparity on agricultural production among smallholder farmers in Cheptais division. The information provided through this questionnaire will be purely and exclusively for academic purpose and will be treated with top most confidentiality. There is no right or wrong answers. All answers will be considered right and you need not wright your name.

Please free to give your answers. Your co-operation and assistance will be highly appreciated.

SECTION A: Demographic information

1 Profile of the respondent

i) Gender

Male Female

ii) **Marital Status**

Single Married

Divorced Widowed

iii) **Age**

18-24 years 25-30 years 31-35 years 36-40 years

41-45 years over 45 years

iv) **Education level**

Primary Secondary

Diploma Higher Diploma

University

SECTION B: Gender inequality issues.

v) Are you aware of any gender disparity issues that influence agricultural productivity?

Yes

No

Don't know

vi) Which issues do you think have had an influence on agricultural production?

a) Access to land

Yes No

b) Control to land

Yes No

c) Access to extension services

Yes No

d) Access to market

Yes No

e) Control of income from the farm

Yes No

f) Access of income from the farm

Yes No

SECTION C: USE OF PRODUCTIVE RESOURCES

g) What size is your land in acres?

<1 1-4 >5

h) Who owns the land?

Husband Wife Family Joint Contract

i) Who makes decisions on how land is used?

Husband Wife Family others (specify).....

j) Do you use fertilizer on your farm?

Yes No

k) If yes which type of fertilizer do you use?

Artificial Fertilizer Manure None

l) In your opinion, does use of fertilizer increase productivity on the farm?

Yes No don't know

m). who provides the labor use on the farm?

Family Hire labor both family and hired

n). Do you have access to credit facilities?

Yes No

o) If yes, from which institution?

Commercial Bank KWFT Faulu Kenya Village Savings
and loan Associations

p) According to your opinion, do women have access to financial services?

Yes No

q) What is your recommendation to women's financial state?

r) Do you have control over income from the farm?

Yes No

s) Do you agree that control over income increases agricultural productivity on the farm?

Strongly agree Agree strongly disagree disagree don't know

SECTION D : Access to Extension services

t) Do you have access to extension services?

Yes No

u) Who provides the service?

Min of Agriculture Non-governmental Organizations Volunteers

v) How would you rate the effectiveness of the extension services provided?

Very effective Moderate Not effective don't know

w) What is the average yield on the farm per acre? () kg

< 50kg 50-100 kg 101-1000kg >1000kg

x) Do you have access for market of your farm produce?

Yes No

y) What problems do you encounter in the process of marketing your produce?

(A) Strategies for improving women involvement in Agriculture

z) What strategies can be used to improve women involvement in Agriculture

Thank you

APPENDIX III: AUTHORITY TO COLLECT DATA

Phelix Rapando

P.o Box 883

Mumias

Date

The District Education officer

Cheptais District

Dear sir/madam

RE: Authority to Collect Data

I am a final year student pursuing a degree in Master of Arts in Project Planning and Management at the University of Nairobi. I am undertaking a research aimed at establishing the influence of gender disparity on agricultural production among smallholder farmers in Cheptais division.

In this regard, please grant me the permission to collect the required data from Cheptais division farm families. All information will be treated with confidentiality. The findings of this study will be used only for research purposes.

Your assistance in this case will be highly appreciated

Thank you.

Yours faithfully,

Phelix Rapando

Reg. L50/70206/2011

APPENDIX III : UNIVERSITY CLEARANCE LETTER

APPENDIX IV: RESEARCH AUTHORIZATION LETTER

APPENDIX V: RESEARCH CLEARANCE PERMIT

APPENDIX VI: Z FACTOR TABLE

Confidence level	Z factor
99.9	3.2905
99.7	3.000
99.5	2.8070
99.0	2.5758
98.0	2.3263
99.5	2.000
95.0	1.9600
90.0	1.6449
85.0	1.4395
80.0	1.2816

Source: Cole (2009)