

SOCIO-CULTURAL FACTORS AFFECTING WOMEN PARTICIPATION IN BEE-KEEPING IN BARINGO SOUTH SUB- COUNTY, BARINGO COUNTY, KENYA.

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A Thesis Submitted to Graduate School in Partial Fulfillment of the Requirement for the Master of Arts Degree in Gender and Development Studies of Egerton University

EGERTON UNIVERSITY

MAY, 2021

DECLARATION AND RECOMMENDATION

Declaration

I solemnly declare that this work is my original work and has not been presented for the award of any degree anywhere.

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Recommendation

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ABSTRACT

Beekeeping is a socio-economic activity practiced by both women and men all around the world. It entails the rearing and management of bees for commercial production of honey and other beehive products. In Kenya, beekeeping is mostly a male's dominated venture but with advocacy programme smallholder women have ventured the field. Despite the efforts of county government and nongovernmental organizations encouraging women participation in beekeeping there is low uptake of this venture, thus the gap between the norm and the practice. This study therefore investigated the socio-cultural factors affecting women participation in beekeeping in Baringo South Sub-county. The study sought to investigate how training, cultural stereotypes, cultural norms and stereotypes, land tenure systems and women's productive roles affects women participation in beekeeping. Survey research design was used. The study population was 700 women who practiced beekeeping in the areas. From the study population, a study sample size of 128 women participants was selected using simple random sampling procedure. Data was collected using questionnaires for the respondents and interview schedules for the key informants who included the chairs of the women groups and the branch manager of an NGO. The instrument was piloted in Baringo North Sub-county. A coefficient of 0.83 was obtained indicating the instruments were reliable as it was above the required threshold of 0.7. Data was analyzed using both descriptive and inferential statistics. The study results indicate that coefficients for tertiary (college) (-2.645) and university level of education (-2.794) were negative and significant at 5% level. This implies that possession of more formal education is attributed to non-participation in bee keeping. Majority of the respondents (82.8%) indicated that they had cultural beliefs and stereotypes that hindered them from practicing bee keeping. Most of the stereotypes revolved around beliefs that beekeeping is purely a male's role, no woman should own beehives because she will die. The coefficient for individual land ownership (1.207) was positive and statistically significant at 5% level (p -value = 0.020). This implies that owning land on individual basis leads to greater women participation in beekeeping. The coefficient for gender roles (-0.592) was negative and statistically significant at 5% level (p -value = 0.020). This implies that greater load with gender roles reduces women participation in beekeeping. The study therefore recommends more awareness and campaigns to be done on the importance of including women in beekeeping. Policies on land ownership needs to be implemented in the area to enable more women own land. This will enhance women participation in beekeeping in order to create employment and income.

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LIST OF ABBREVIATIONS AND ACRONYM

ASAL-	Arid and Semi-Arid Land
CIP-	Center for Insect Program
FAO-	Food and Agricultural Organization
HIH-	Hand in Hand
ICIPE-	International Centre of Insect Physiology and Ecology
KNBS-	Kenya National Bureau of Statistics
KSF-	Kenya Forest Services
KTBH-	Kenya Top-Bar Hive
NACOSTI-	National Council for Science, Technology and Innovation
NGO-	Non-Governmental Organization
SPSS-	Statistical Package for Social Sciences
UNDP-	United Nations Development Program
UNEP-	United Nations Environmental Program
UNICEF-	United Nations Child's Fund
WHO-	World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Beekeeping is an agricultural branch in which beekeepers take care of honey bee colonies in order to collect honey and other hive products such as bee wax, propolis, pollen, royal jelly among other products. Globally, bee farming is practiced in countries like Spain, Central India, and Middle East, Great Britain among others. Paintings in caves portrayed people gathering honey from honey combs in hollow trees and rocks (Birhanu, 2016). In Great Britain for example, bees were kept as early during Bronze Age since honey was used in bronze casting, candles and in lighting lamps. In most of these places, the practice was majorly a male's role and women were less involved (Weber, 2013).

In Africa, beekeeping is practiced in many countries. For instance, North Africa, Algeria, Egypt, Libya, Morocco and Tunisia. In East Africa, Kenya, Tanzania, Uganda are well known for beekeeping. In the North Eastern Africa, beekeeping is also practiced in Djibouti, Ethiopia, Somalia and Sudan. In West Africa, it is mostly practiced in Benin, Burkina-Faso, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Liberia, Mali, Niger, Nigeria, Senegal, Siera-Leone and Togo. In most of these African Countries, men dominate in the field of beekeeping since women are less involved in the process (Raina, 2015).

Gender roles along the beekeeping practice vary from one country to another. This is because different countries have different cultural practices and beliefs which influence directly or indirectly on roles assigned to men and women practicing beekeeping. In Pakistan, women took part in feeding the bees with supplements, extracting of honey from the combs and packing the honey. Men replaced bee colonies, bred the queens, harvested the honey and marketed it. In Angola for instance, honey harvesting was largely done by men (Birhanu, 2016). In Zambia, women were more involved in the processing stage. They convert honey into local beer. Men on the other hand took part in harvesting of the honey, keeping records and took records during group meetings (Shackleton *et al.*, 2011).

Gender roles determine how activities are divided in bee farming sector (Waber, 2013). For instance, women are given roles like cleaning the apiary, watering the bees especially during dry seasons, honey processing and honey marketing (Oduol *et al.*, 2013). Men on the other

hand play roles like constructing hives, repairing them when they spoil, hanging the hives on top of trees as well as harvesting honey (Pactkenya, 2010).

In Kenya, beekeeping is practiced majorly in areas such as the Coastal region, Kitui County, Mwingi, and Baringo County. Bee keeping has been practiced traditionally for many years. Only twenty percent of the country's honey has been tapped. Eighty percent of the honey comes from the Arid and Semi-Arid Land (ASAL) areas although non-Arid and Semi-Arid Land (semi-ASAL) areas also practice apiculture (Pact Kenya, 2010). ASAL areas is high in honey production because of the abundance in bee flora. At the Kenyan Coast, women clean apiary, water the bees and transport the hives to the apiary. Men offer security, repaired the hives, harvested and marketed the processed honey. Men carry out most of the work and women are assigned roles that go hand in hand with their gender roles. Most of the time, women interact with honey and other hive products during value addition process (Shacleton *et al.*, 2011). This raises a question as to why it is not the initial processes like siting of apiaries and hive hoisting.

In Baringo County, bee keeping is a function for men. Women are not allowed to own or even count the number of bee hives. Cultural practices as well as social constraints have hindered them from practicing bee keeping (Ahikiriza, 2016). These constraints include time constrain, inability to climb up trees and harvest honey from traditional log hives as well as the nature of bees kept in the area. African bee, *Apis Millifera* is very aggressive and women because of bee phobia, get discouraged (Chemurot, 2011; Qaiser *et al.*, 2013). Other constraints include the fact that honey harvesting is carried out mostly at night when women are mostly carrying out household chores (Qaiser *et al.*, 2013). Some women in Kipsogon area have broken this barrier and are trying to demystify the norms that bar them from practicing apiculture. Other women still believe in the cultural norms and that is why they are not practicing it.

Training on apiculture helps women to address some of these challenges such as the one on bee phobia. They are encouraged to wear protective suits to protect themselves from the bee stings when harvesting honey during the day time when bees are more aggressive (Raina *et al.*, 2009)The introduction of modern bee hives has helped to address the challenge women face on climbing trees. These modern bee hives such as the modern Langstroth hive that is

hoisted near the ground has eased the work of honey harvesting for the women (Shackleton *et al.*, 2011). Climbing trees is culturally unacceptable for women in Baringo County.

An overview of women involvement and gender roles in beekeeping Previous studies have shown that beekeeping has often been considered a male-dominated enterprise in Uganda, Kenya and Zambia (Mujuni *et al.*, 2012; Shackleton *et al.*, 2011; Vlek *et al.*, 2003). Further research indicates that women are increasingly taking up beekeeping as an income generating activity in Nyando and Mwingi, Kenya (Macoloo *et al.*, 2013; Raina *et al.*, 2009). However, they often encounter social and cultural constraints that hinder them from performing apiary cultural practices (Shire *et al.*, 2016).

In Zambia, women are more involved at the honey processing stage of the value chain where they convert harvested honey to a local beer called 'mbote' while men harvest honey, keep records and take minutes during group meetings (Shackleton *et al.*, 2011). At the Kenyan coast, the role of women in beekeeping include cleaning the apiary, watering bees and transporting of hives to the apiary while men offer security, repair the hives, harvest and market honey (PactKenya, 2010). Pakistan, involvement of women in beekeeping as an income generating activity has been due to involvement of development agencies through trainings that boost their skills in the management of apiculture (Qaiser *et al.*, 2013). Some of the apiary activities carried out by women in Pakistan include feeding bees with supplements, extraction of honey from combs and packaging. Men on the other hand, replace bee colonies, breed queens, harvest and market processed honey (Mburu *et al.*, 2015).

Most of the studies have neither stratified apiary cultural practices nor characterized them by gender. Studies by Macoloo *et al.* (2013) in the Lower Nyando, for example appreciated that more women are participating in beekeeping as an income activity with the aim of improving their livelihoods. Additionally, Birhanu (2016) argued that beekeeping can enhance the position and income of a woman in the society. The current study stratifies apiary cultural activities by gender to clearly highlight activities carried by each of them.

This study sought to investigate on the influence that education level, cultural norms, land tenure systems and gender roles on beekeeping. In education for instance, research shows that training is key if new ideas on beekeeping have to be learned. Through training, new technologies are learned. Beekeepers in Kenya who adopt new technologies are learned

(Carroll & Kinsella, 2013). Through training, modern hives and better beekeeping methods are introduced. According to Commercial Insect Program (CIP) report 2017, farmers who use modern hives have a higher honey production.

Education and training has helped people to abandon some stereotypes that hindered women from practicing beekeeping. This has also led to acceptance of new practices (Abebe *et al.*, 2008; Akudugu *et al.*, 2012). Training has also widened the scope of farmers on issues of capital acquisition, bee management and equipped them with skills like saving skills and entrepreneurship skills which help them in bee farming (Carroll & Kinsella, 2013). It also equips knowledge to farmers on how to start up apiaries, how to maintain colonies as well as honey harvesting and processing techniques.

Cultural norms which are the shared expectations and rules that guide behaviours of people within a social group influence the way roles are assigned to men and women when it comes to beekeeping. Beekeeping as a form of farming has been taken as a male's role (Mujuni *et al.*, 2012; Shackleton, 2011). Women face challenges such as not being allowed to practice beekeeping since some cultures expect it to be purely male's field. Women cannot construct, repair or even count the number of beehives in a farm. Norms also bar women from climbing up trees or removing clothes so that they can harvest honey. Honey harvesting is also done at night when women are busy carrying out nurturing roles.

Cultural stereotypes have made women to believe that beekeeping should be purely a male's field and that women who attempt to practice beekeeping become a curse to their families and the community at large. Because of these stereotypes, women have left the field to be practiced by men who use the cultural stereotypes to keep women away (Ahikiriza, 2016). These stereotypes have made women believe that they would die if they practice beekeeping and due to the fear of death, they prefer practicing other farming methods rather than beekeeping.

Land tenure is an institution which has rules invented by society to regulate how property rights to land are to be allocated within a society. Land tenure influences the size of land that individuals own. This directly influence on beekeeping because if a farmer has a big size of land, it would be possible to put a large number of hives (Jaco, 2013). It also dictates on the type of crops to be grown on the farm whether it supports beekeeping or not (Carroll &

Kinsella, 2013). This study therefore investigated on the socio-cultural factors affecting women's participation in beekeeping in Baringo South Sub-County even if Baringo County is known to have a high potential in beekeeping.

1.2 Statement of the Problem

In Kenya women provide the largest share of farm labour which is usually unpaid. Women ensure food security at household level and contribute to the growth of the gross domestic product. As a result of unpaid and unrecognized efforts in agricultural activities women remain economically unempowered. The county government, national government and NGOs have devised ways of eradicating poverty among women and youth in ASAL areas such as Baringo South Sub-County through introduction of economic activities such as beekeeping. Due to unpredictable weather condition women are unable to meet the strategic and practical needs thus making them more vulnerable to poverty than men. Beekeeping is seen to be suitable economic activity in the study area due to low capital intensity, favorable condition for beekeeping to thrive and low labour requirements thus not increasing the burden of women's gender roles. Despite the efforts of the stakeholders to encourage women to venture into beekeeping and the advantages tagged on it, women's participation in beekeeping still remains very low. This could be attributed to several factors among them socio-cultural issues. This study thus embarked on investigating selected socio-cultural factors affecting women's participation in beekeeping in Baringo South Sub-County.

1.3 General Objective

The general objective of this study was to investigate the effects of selected socio-cultural factors in beekeeping among women in Baringo County in Kenya.

1.4 Specific Objectives

The specific objectives of this study were:

- i. To determine how training affects women's participation in bee keeping in Baringo South Sub- County.
- ii. To examine the effects of cultural norms and stereotypes on women participation in bee keeping in Baringo South Sub- County.
- iii. To determine how land tenure affect women participation in bee keeping in Baringo South Sub- County.

- iv. To analyze how gender roles affects women participation in bee keeping in Baringo South Sub- County.

1.5 Research Questions

This study was guided by the following research questions:

- i. To what extent does training affect women participating in bee keeping in Baringo South Sub-County?
- ii. How does cultural norms and stereotypes affect women's participation in bee-keeping in Baringo South Sub- County?
- iii. Does the type of land tenure affect women's participation in bee-keeping in Baringo South Sub- County?
- iv. How do gender roles affect women's participation in bee-keeping in Baringo South Sub-County?

1.6 Justification of the Study

Women beekeepers in Baringo South Sub-County face many social and cultural challenges in the beekeeping chain. This study was purposed to create awareness on gender disparities in beekeeping as an economic activity in Baringo South Sub-County. This will be done through publications of the study results, seminars and attending of conferences whereby the researcher shall make the findings public and people can find them. That way, information will be disseminated to farmers thus bringing about change in the beekeeping sector. This study was also carried out to understand the socio-cultural factors hindering women participation in bee keeping. There were factor which included cultural norms for example women were not allowed to sit on beehives, count the number of beehives, climb up trees to hoist hives among others that prevented women from beekeeping. There existed stereotypes such as: women not being allowed to harvest honey because it was believed that all the bees could abscond from the beehives, if a woman destroyed a beehive it was believed that she and all her children would die. This study was also to generate new knowledge on issues of women in bee keeping activities and how to eliminate stereotyping. This was through training where farmers were discouraged from the believing in those stereotypes and were encouraged to take beekeeping actively the way men do. Finally, this study was to empower women with skills on beekeeping which will enhance women venturing in bee-keeping. Through training, women learned modern and improved technologies which enhanced the practice by enabling

better production of honey and other hive products such as bee wax and propolis. This will increase the women's income and improve their living standards.

1.7 Significance of the Study

It is hoped that the findings of this study will be used by policy makers in building capacities especially on women so that they can practice bee keeping as an economic activity. This will empower them economically since beekeeping is a highly profitable enterprise. This study will also increase the knowledge of the women beekeepers since they will learn modern and improved technologies on beekeeping. The knowledge acquired will encourage more women to practice apiculture and this will enhance gender equity and equality in bee farming. Women are usually at a disadvantaged position when it comes to apiculture. This is because bee farming has been taken to be a patriarchal field where women should not take part in. The findings of this study will inform the community on the challenges women face in apiculture thus coming up with gender specific policies which will address the challenges.

Gender equality is critical in enhancing inclusion of women in beekeeping which will lead to sustainable development. Through apiculture, women will be able to get economic empowerment which will enhance the wellbeing of their families, communities and the nation at large. This study will also help to fill the gap on why many women are not involving themselves in apiculture especially at the initial stages like hoisting of bee hives or setting apiaries. It will also open doors for other researchers to carry out research on this topic thus adding more knowledge to the field of gender and apiculture.

1.8 The Scope of the Study

This study was carried out in Baringo South Sub-County and covered the following areas: Koriema, Kimalel, Kibingor, Sabor, Ketemwa, Koitilion, Kabusa, Perkera, Yatoi, Endao, Kaptich, Bekibon, Tinomoi, Muigutwo, Sogor, Tebei and Ilchamus. This study focused on four areas which included: training, cultural norms and stereotypes, land tenure systems and gender roles. It focused on women who were 18 years and above who practiced beekeeping in Baringo South Sub-County in the areas listed above. The sub-County was chosen because it has a high potential in bee keeping. Most parts of Baringo South Sub-County are dry land and the practice of other types of farming like crop farming is limited to areas where irrigation is possible for example areas along River Perkera. Climatic conditions like extremely high temperatures discourage many types of farming methods. The area also faces

a challenge of scarcity of water. When wells are dug, the water is salty and this type of water is not good for crop farming. The water table is also too deep and therefore not everyone can afford to dig a well. The residents are left with two types of farming; beekeeping and goat keeping. Other people have opted for charcoal burning which is not sustainable as such because the government has been discouraging people on cutting down of trees. Women especially were not showing a lot of interest in this type of farming even after some Non-governmental Organizations (NGOs) such as Hand-In-Hand did their best in carrying out capacity building on the same.

1.9 Limitations of the Study

The following factor posed as limitation of this study:

- i. Harsh climatic conditions posed a big challenge to the researcher. The climatic conditions in Marigat division were extremely hot during the day. The delimitation to this was that the researcher collected information early in the morning and in evening when the intensity of the sun's rays were low.
- ii. The research results cannot be generalized in other counties practicing beekeeping since every county has unique socio-economic characteristics thus the results should be generalized with utmost caution.

1.10 Assumptions of the Study

The following were the assumptions while conducting the study:

- i. The information given by the respondents was true and accurate.
- ii. The sample size was a good representation of the whole population.

1.11 Definition of Terms

Affecting-In this study, affecting meant to have influence on matters to do with beekeeping. For examples issues like training, norms and stereotypes, land tenure systems and gender roles.

Agriculture- According to this study, agriculture referred to any practice of tilling and cultivating the soil as well as animal husbandry which included beekeeping, rearing of goats, dairy cows, planting of millet, sorghum and fruits.

Apiary- this is a location where beehives of honey bees are kept.

Beehive- this is an enclosed structure in which bees live and raise their young ones for example the log hives, Langstroth hives and the Kenya Top Bar Hives (KTBH) hives.

Beekeeping-it referred to the act of keeping and maintenance of bees for honey production as well as for other hive products such as the royal jelly, wax, propolis among others.

Culture- in this study, culture referred to the way of life of Baringo residence including their beliefs, practices, behaviours, taboos as well as what they consider right or wrong.

Cultural stereotypes-in this study, gender stereotypes referred to the normative notions of femininities and masculinities in the society in relation to beekeeping.

Empowerment- according to this study, empowerment referred to the process of generating and building capacities to exercise control over beekeeping matters. This was done through training and capacity building on beekeeping matters.

Gender- in this study, it referred to rights, duties, roles, obligations and privileges assigned to men and women in beekeeping. For example the roles assigned to men included siting of apiaries, hoisting of beehives, harvesting of honey while those of women included providing water to the bees, honey processing and marketing.

Gender equity-it referred to the process of being fair to women and men in beekeeping for example including both men and women in decision making in the beekeeping practice.

Gender equality- in this study it referred to a situation where women and men had similar conditions and chance to participate in beekeeping for example allowing both men and women to own the number of beehives they would wish to own.

Gender roles- in this study, it referred to socially and culturally defined roles assigned to women and men in beekeeping.

Land Tenure -in this study it referred to rights to own and make decisions on how the land should be used in beekeeping by both men and women.

Level of Education- in this study, it referred to the highest level of knowledge and skills attainment on beekeeping for example primary, secondary or tertiary levels.

Norms- these are rules or expectations that are socially enforced when it comes to matters beekeeping.

Participation- this is the action of taking part in beekeeping.

Socio-cultural Factors—in this study these included: training, gender stereotypes, land tenure as well as women's productive roles that affected participation of women in beekeeping.

Training- the process of disseminating knowledge and skills on beekeeping practice to the women farmers. It included holding of seminars, workshops as well as practical on beekeeping.

Woman- In this study, a woman is any lady above 18 years.

Women participation- in this study, it referred to the process of women involving themselves in beekeeping and carrying out activities done in bee farming.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature related to selected socio-cultural factors affecting women's participation in beekeeping. It examines the broad situation of beekeeping globally, regionally, the situation of beekeeping in Kenya. It also examines the influence of training on women's participation in beekeeping, effects of cultural norms and stereotypes on women's participation in beekeeping, how land tenure systems affect women's participation in beekeeping as well as how gender roles affect women's participation in beekeeping. Theories and conceptual framework will be discussed in this chapter.

2.2 Global Trends in Beekeeping

Honey production did not develop before 1800. In Europe, beekeeping emerged in 18th Century. Europeans' understanding of bee colonies and their biology made it possible to construct movable comb hives (Affagnon, 2015). The construction of these hives made it possible for them to harvest honey without destroying the entire colony. Beekeeping was also practiced in Northern America where they imported bees from Europe. Before 1852, beekeepers in North America gathered honeycombs, crushed and heated them before making use of them (Waber, 2013). Bees were left on their own, starving without food and many of them died. Reverend Lorenzo L. Langstroth, an American clergyman, invented the first wooden beehive with movable frames (Gemechis, 2015).

In the United States, beekeepers were usually farmers who lived in the rural areas. They kept the European bees. Asians also kept honey bees so as to collect honey and wax from them. In Australia and Central America, stingless bees were kept for pleasure of conserving nature and native species (Mburu, 2015). In Great Britain, bees were kept during the Bronze Age purposefully for bronze casting as well as for manufacturing of candles and lamps. Beekeeping was also practiced in the Middle East, Spain, India and Africa. Beekeeping was thus an important practice all over the world.

According to Waber (2013), beekeeping was a male's role in almost all parts of the world. Men were more active in the setting of apiaries, construction of bee hives, honey harvesting and general bee management. Women came in during marketing. This is because many women had a bee phobia and were afraid of the bee sting. Women also lacked time to

practice beekeeping because they had other household chores which made them leave the practice for men (Oduol *et al.*, 2015).

2.3 An Overview of Beekeeping in Africa

In Africa, honey bees were kept in Egypt from antiquity. The earliest evidence for hive keeping comes from the old kingdom of Egypt. Pre-historical paintings were found in different caves showing people gathering honey from honey combs (Teweldemedhn, & Alem, 2016). This acted as an evidence to prove that beekeeping was a practice during ancient times. Other areas where beekeeping was practiced in Africa included South Africa, Kenya, Uganda, Tanzania, Algeria, Tunisia, Nigeria, Niger only to mention a few.

Africa is blessed with numerous types of wild honey bees. They exist everywhere man lives from the equatorial evergreen rain forest to the desert Oasis (Chemurot, 2011). Bees are more numerous in drier savannah than in the wetter forest areas. Beekeeping in hives is mostly practiced in Egypt, Kenya and Tanzania (Weber, 2013). Bees are more productive in warmer areas because most of their energy will be used in honey production, nectar hunting and water searching. In colder areas, some of the energy would be used for heat production to warm their bodies and thus reducing their productivity (Muli *et al.*, 2015). Bees are usually more active during warm seasons than in cold ones.

In Africa, beekeeping is a male dominated field. This is evident in countries such as Uganda, Kenya and Zambia (Shackleton *et al.*, 2011). Men reserve the right of making most decisions at the household and the community level in most African countries. Women therefore have less ownership over assets and decision making thus resulting to them not making decisions on issues of beekeeping (Stagey *et al.*, 2017). Women thus encounter many obstacles as they try to practice bee farming in most African countries. These obstacles include cultural norms and belief that prevent them from setting apiaries or owning hives. Other obstacles include inadequate knowledge on beekeeping, bee-sting phobia as well as the multiple roles they have to play in their households (Qaiser *et al.*, 2013).

Different countries have different ways of utilizing hive products. For instance, some countries use honey as medicine while others use it to make traditional brew. Others use it as a sweetener by applying it on bread or in porridge and other drinks like tea (Chemurot, 2011).

In Zambia for example, honey is used to manufacture traditional brew (*mbote*) while in Kenya, it is mostly used for sweetening purposes as well as for medicinal value.

Governments from different countries have been trying to address this issue of women not involving themselves in beekeeping but to date, women are still few in the field. Education and training has been done but women are not adopting beekeeping as expected. Africa has fewer women in beekeeping as compared to the western world. This study therefore sought to investigate more on the reasons why these women were reluctant in adopting beekeeping.

2.4 An Overview of Beekeeping and Women Participation in Kenya

In Kenya, women perform majority of the agricultural activities such as food production, storage, processing and marketing (Oduol *et al.*, 2015). Even though they play a major role in these activities, they end up receiving a fraction of the income generated (Republic of Kenya, 2010). One of the main objectives of the government of Kenya is to reduce poverty through the stimulation of economic growth. Many Kenyans still depend on small scale subsistence farming with households struggling to make a living (Monitoring Africa Food and Agricultural Commodities, 2013). Beekeeping is one of the strategies the government is using to empower residence of areas with high potential in bee farming.

Despite these efforts, beekeeping is slowly picking up although many women are not involving themselves in it (FAO, 2016). According to the republic of Kenya (2013), various factors can be used to explain this slow growth. These include natural factors like degradation of bee habitats due to increased population, technical factors such as poor hive quality, human factors such as inadequate practices and contextual factors such as inadequate access to market (Muli *et al.*, 2015). Another factor is lack of replacement for the beekeepers opting out of bee farming due to the continued lack of apprenticeship. In the past, fathers passed their knowledge to their sons unlike in the modern society where the sons are too busy with other careers other than beekeeping (Republic of Kenya, 2010).

In Kenya, beekeeping is not an attractive option for women because of cultural issues, inadequate skills on beekeeping, gender stereotypes as well as the multiple roles that take much of their time leaving no time for them to practice beekeeping (Ahikiriza, 2016). Cultural beliefs, norms and stereotypes discourage women from taking this profitable enterprise. For instance, according to many cultures, women will die if they own hives, hoist

them, construct or destroy them or will make all bees abscond if they count the number of hives in the farms. Women are the gate-keepers of culture and since they believe in the stereotypes, they leave the farming practice to men (Raina *et al.*, 2009). They only come in during marketing and value addition time. Limited access to formal education and training for women and young people is also another set-back to women's adoption of beekeeping (Birhanu, 2016). Many women especially in the rural areas are illiterate and do not have a lot of formal education especially on beekeeping. Most extension officers who carry out training and capacity building on bee farming are men. This means that women have been locked out of these trainings and do not have role models to emulate. Due to these constraints, women fail to attend seminars and trainings since they are usually held at the times when women are busy carrying out productive, reproductive and community development roles (Affognon *et al.*, 2015).

Access to land is also another hindrance to women's adoption of beekeeping (Jaco, 2013). In Kenya, land is usually owned by men and it is passed from father to son. Women are denied the right to land ownership. They can only access it in a marriage set up but cannot make decisions on how to use it (Shire *et al.*, 2016). The man is the one to decide what to put in which piece of land. Women are left without any power to decide whether to practice beekeeping or not since that power has been denied by culture. People have also opted for other farming methods like floriculture, crop horticulture, agronomy and even animal husbandry, leaving behind beekeeping (FAO, 2016). People opted for these other farming methods because they see them as a source of quick money since the crops mature early. People are using green houses that quickens crop maturity. For beekeeping, it takes time since honey is harvested in seasons (Tesfaye *et al.*, 2017).

Women are also hindered by too many gender roles which they have to perform on a daily basis. These roles are repetitive and time consuming thus taking most of the women's time. In the household, women take care of all the farm animals, till the family subsistence land, manage other enterprises like poultry, family businesses as well as the nurturing roles (Mosser, 2005). These roles take most of their time leaving them with limited time to practice beekeeping. They only come in at the last stages when the honey is being processed and during value addition. They also take part in selling of the honey. Women also lack the initial capital to start beekeeping. In the society, there is feminization of poverty whereby there is an increased level of poverty biased against women thus making women more financially

vulnerable. In beekeeping, one has to buy bee hives which are a bit costly. Many women lack credit to start beekeeping (Ahikiriza, 2016).

Beekeeping has been promoted by various governmental and non-governmental organizations in Kenya's rural areas. The aim has been to reduce food insecurity, unemployment and improve people's wellbeing (Raina *et al.*, 2009). Examples of such organizations include: Kenya Forest Service (KFS), United Nations Development Program (UNDP), International Centre of Insect Physiology and Ecology (ICIPE) as well as Hand in Hand (HIH) organization in Baringo County. The above organizations have further introduced modern bee hives like the Langstroth hive, farmers' trainings, honey value chain development among others (Kioko, 2010). Despite the trainings, women are not much involved in the farming. This research seeks to investigate the reasons why women are less involved in beekeeping.

On realization of the importance and potential of beekeeping in Kenya, the Kenyan government has introduced modern beekeeping where technology such as modern hives, honey extractors, honey pressers, smokers, veils and gloves are used (Qaiser *et al.*, 2013). Bee training programs have been launched in order to assist farmers and extension technicians. The most preferred hives are the box hives (Muli *et al.*, 2015). This is a good way of alleviating poverty especially in rural areas since honey is a very profitable commodity. The government has also constructed honey factories where farmers can take their honey for value addition after harvesting.

Baringo South Sub-County is an arid and Semi-arid land where conventional agriculture does not thrive. Residence of that area depend on charcoal burning and goat keeping to meet their livelihoods and introduction of modern beekeeping can be a great benefit to them (Republic of Kenya, 2013). Women sell firewood along the roads in order to earn a living and provide for their families. Others depend on relief food from government and organizations like the Kenya Red Cross to meet their basic needs and those of their families. If both men and women practice beekeeping, their livelihoods will change drastically since beekeeping is a highly profitable enterprise.

In Baringo South Sub-County, research indicated that the residence still use traditional log hives (Raina, 2015). Other hives used in the area include bark hives that has been peeled from

the trunk of a tree (Carrol & Kinsella, 2013). Honey harvesting is done at night and it involves stripping the trunk before climbing the trees (Gemechis, 2015). This explained why most women are not taking part especially in the harvesting. Moreover, women are busy carrying out the nurturing roles at night while men are free and can go to the bushes to harvest honey. The government and Hand in Hand Organization is carrying out sensitization on modern beekeeping to try and ensure that women also get involved in beekeeping at all stages (Republic of Kenya, 2010).

In Baringo South Sub-County, beekeeping is practiced by mostly men. Women are less involved in it especially at the initial stages. However, research indicates that little research has been carried out on beekeeping and very little in-depth qualitative information has been collected. This study therefore aimed at filling a gap by finding out the reasons for women not involving themselves in beekeeping especially at the initial stages of the activity.

2.5 Training on Women's Participation on Beekeeping

Training is the process of facilitating knowledge, or the acquisition of knowledge, skills, values, beliefs and habits. Training methods include storytelling, discussion, teaching, and training as well as directed research. The methodology of teaching is called pedagogy (UNDP, 2014). Bee farming just like any other farming method requires training and imparting of knowledge on how to handle bees (Carrol & Kinsella, 2013). In Kenya and particularly Baringo South Sub-County, there exist women who are learned and have knowledge on bee farming. There are also those who have the indigenous knowledge on how to handle bees. There are also women who do not have any knowledge on bee keeping but still try to practice bee farming with the help of other people in the village especially men.

2.5.1 Importance of Training in Bee farming

Training is key if people have to learn new ideas and technologies. Through education and training by extension officers and other stakeholders, farmers are able to acquire new ideas that will enable them improve their bee farming and get higher yields. Bee keepers in Kenya who tend to adopt new technologies tend to be on average, older than the average population and more economically endowed with significant higher income (Stagey *et al.*, 2017).

Technology has enabled farmers who although having a lower number of hives to produce more honey in terms of quantity (Mburu, 2015). In the present world, for example in Kenya

and Baringo County, land has become a scarce commodity. This is because of population pressure which has forced people to clear fields which were initially left for practices like bee keeping. Because of technologies like the introduction of modern hives like the Langstroth hive and Top bar hives, farmers can now use fewer improved hives to produce more honey of better quality. Statistics show that farmers who attend trainings produce a higher number of honey per kilogram and use lower cost.

According to Commercial Insect Program (CIP) report of 2017, it is clear that the farmers who use modern hives have a positive effect in efficiency in honey production. Most farmers after attending trainings abandoned the traditional log hives and adopt the modern bee hives. This can be attributed to capacity building in addition to modern hives. Farmers have been sensitized on good methods of bee keeping which has widened their knowledge on bee farming. Adoption of modern hives have been associated with education of the household. It is clear that households with more years of education are likely to have access to information and are therefore amenable to the acceptance of new practices (Akudugu *et al.*, 2012). The level of adoption increases with exposure through apiary visits.

Bee keepers who participate in the Commercial Insect Program would enhance the probability of acquiring the improved technology either directly through linkages to financial service providers (Abebe *et al.*, 2008). Farmers who attend trainings are able to access services and are able to acquire knowledge on how to get capital to start bee farming or expand their farming by buying more and better improved modern hives. Trainings and capacity building is mostly done by NGOs who at most times support the farmers financially and can sometimes donate improved and modern hives to ensure that their projects succeed and that their clients get the best knowledge that can improve their lives.

Training results to expansion of one's intellectual capability thus translating to better decision making. Because of training, farmers acquire good perceptions that are informed by good decision making. This has led to high honey yields, good quality honey and adoption of quality hives. Farmers' perceptions of technology significantly affect their decisions on whether to adopt technology or not (Wadji *et al.*, 2012). Those who are learned easy adopt new technologies than those who have little or no education (Carrol & Kinsella, 2013). Those who are learned take instructions as given and end up with a good harvest and higher yields.

Through education and training, farmers are able to acquire training on good bee keeping practices. They are able to get knowledge on how to set up a good apiary, how to maintain a good colony, what to do in case the bees are attacked by pests or diseases or how to prevent their colonies from getting attacked by pests or diseases, good honey harvesting methods as well as knowledge on where to sell their products at good prices.

According to Jiwa, 2005 and Muga, 2011 there exist several challenges that hinder farmers and especially women from adopting the lucrative farming practice. Some of these practices include the multiple roles of women. Women have many roles which include the productive, reproductive and community development (Mosser, 2005). Women therefore find it hard to attend the trainings that take place in their communities because they have to do all the work in their families. Because of that, man women do not attend the trainings and end up not having any knowledge on the new and improved technologies. This has resulted in many women using the traditional methods of bee keeping even with the introduction of modern methods (Mulisa & Fekadu, 2017).

Another challenge that prevent women from adopting new knowledge on bee farming is gender bias social norms and practices (Ahikiriza, 2016). There exist social norms that restrict women's mobility and prevent them from moving out of their homes. That means women will not gain any new knowledge. Other norms include those that prevent women from taking part in decision making for example those that say women are there to be seen and not to be heard. This prevents women from sharing any knowledge they have or make decisions that can enable them influence what is going on in the society (Qaise *et al.*, 2013).

Another challenge is the nature of trainings that are brought to the grassroots. In some cases, these trainings target male dominated professionals thus locking women out (Pocol, 2011). When the trainings target men, women will find the teachings irrelevant and will not fit into the congregation. Some women are excluded from training opportunities because of education and weak bargaining power in the household. They cannot convince their husbands to allow them attend trainings and seminars in the community (Caroll & Kinsella, 2013).

Some women lack self -confidence because they might be having little education (Qaisa *et al.*, 2013). Their self- esteems are so low and cannot attend anyone's training because they

believe they are incapable of learning anything. They therefore shy away from training leaving the training fields for men and a few learned women.

2.6 Cultural Norms and Stereotypes on Women Participation on Bee Keeping

Cultural Stereotypes refers to attitudes and patterns of behavior in a given group. Norms on the other hand refers to attitudes and behaviours that are considered normal, typical or average within a group (UNDP, 2014). Cultural norms are therefore standards that we live by. They are the shared expectations and rules that guide behavior of people within a social group. Cultural norms are learned and reinforced from parents, friends, teachers or other members of a society. Norms change according to the environment, situation and culture which they are found and people's behavior will also change accordingly. Stereotypes on the other hand are widely accepted judgments or biases about a person or a group which cause unequal and unfair treatment because of a person's gender (UNDP, 2014). They are therefore normative notions of femininity and masculinity in the society in relation to beekeeping. These are one of the reasons why women are discriminated in the field of beekeeping.

2.6.1 Effects of Cultural Norms and Stereotypes on Bee Farming

Bee farming has always been taken to be a male's role (Mujuni *et al.*, 2012; Shackleton, 2011; Vlek *et al.*, 2003). This is because women faced many challenges which prevented them from taking the practice well. These challenges included the phobia of bee stings, multiple roles that took most of their time and the fact that honey harvesting was done at night when women were busy taking care of children and families (Kaiser *et al.*, 2013). Therefore, in most cases when honey was being harvested, women were not there and could not know the amount of honey harvested at a particular time. They only waited for the honey at home and accept what their husbands gave to them without questioning.

In most African cultures, women were not allowed to climb up trees and yet most hives were hoisted high up in trees (Muli & Frezier, 2011). In most places especially in Baringo South Sub- county people still use the traditional log hives which required that they be hoisted on top of trees. Women are prevented by culture from doing that and that means they have to look for men to do that on their behalf. This prevents them from total control of their bee keeping practice (Mujuni *et al.*, 2012; Shackleton, 2011). The introduction of modern hives such as the Langstroth hives and the Top bar hives have tried to solve the issue of tree climbing since they are hoisted one meter above the ground where women can easily reach.

Despite the introduction of the modern hives, women still cannot afford to buy them due to the feminization of poverty. Most women are poor and cannot raise the capital needed to buy the modern hives. They end up using the traditional log hives which has many disadvantages. Due to cultural norms and beliefs, majority of the women in Baringo South Sub-County live in the rural areas of course with their husbands and the children. Few have had basic education due to cultural practices favoring boys. Even fewer had the opportunity to exposures to the world outside their homesteads and villages. Because of the tradition that men original task should be performed by men. This limits women active participation during sitting hives, apiary, Management, Honey harvest, Honey and Bees wax processing (Jaco, 2013). Let alone the sales of the hives products. Only few serious and exposed members of the Groups or women Association participate actively. These attitudes has made them lag behind in matters bee keeping since they leave the whole work to men.

Among the Kalenjins of Kenya for example, it is a taboo for women to count the number of bee hives in the farm. It is believed that if they count them, all the bees will abscond and the farmer will not harvest any honey (Chemurot, 2011). Therefore, among the Kalenjins who believe in that taboo, a woman will not know the number of hives thus cannot approximate on the amount of honey harvested during a harvest. She should only wait for her husband to bring her honey after harvesting and should not question on the amount (Alemayeh *et al.*, 2016).

Some cultural norms prevent women from constructing, repairing or hanging bee hives (Kugonza *et al.*, 2009). All these roles are given to males even if women carpenters are available. Among the Kalenjins, it is a taboo for a woman to construct a bee hive (Mulisa & Fekadu, 2017). She should seek for assistance from a man. In absence of men, she should not attempt to do the work for she will be cursing herself and her family too. She cannot destroy a bee hive too because culture dictates that if she does so she will die. Women have therefore been limited by cultural norms and believe to the extent of not practicing the bee farming despite the advantages it has and the high profits too.

Another cultural norm that hinders women from taking part in beekeeping are issues of access to and control over property. Access to resources and property is highly gendered in many parts of the world including Kenya. Women and girls suffer from inequitable land rights and experience restricted access resources and inheritance (Carrol & Kinsella, 2009).

This prevents women from making decisions on what to use the land for or how to carry out farming including bee farming. They cannot make any decision on the number of hives to put in the farm or even whether to practice beekeeping or not. Women lack of land ownership rights inhibits them from access to credit that she can use as capital to start beekeeping. This is because land is often used as a collateral to borrow loans and credit. The little that women earn from selling honey is used to buy food for the entire family. Results on evaluation of financial services shows that males contribute less to the household well-being and food security (Mayoux & Hart, 2009).

2.7 Land Tenure and Women's Participation in Beekeeping

Land tenure is the relationship whether legally or customarily defined among people, as individuals or groups with respect to land. Land tenure is an institution which has rules invented by the society to regulate behaviours (UNDP, 2014). Rules on land tenure define how property rights to land are to be allocated within societies. They define how access is granted to rights to use, control and transfer land as well as associated responsibilities and restrains.

2.7.1 Categories of Land Tenure in Kenya

There are three categories of land tenures. The first type is private land ownership where land is assigned to an individual, a married couple, and a group of people or a corporate body e.g. a non-profitable organization. The second category is communal land ownership where members of a community own land and can be used for activities like grazing. The third category is public type of land ownership where there are no specific land rights given to anyone and no one can be excluded for example in marines or forests and the last category is the state land ownership where property rights are assigned to some authority in the public sector. The most common types of land ownership in Baringo South Sub-County are the private and the communal land ownership. There is also a few public ownership whereby some areas have been left as forests or water catchment areas.

2.7.2 Land Tenure and Women Participation in Beekeeping

Land tenure influence the size of land owned by an individual. The more the amount of land the greater the opportunity to practice bee farming. If the land is big enough, the farmer has the opportunity to choose the best sight which is far from people's residents, an area where it is silent and has little disturbance and a place which is safe from predators (Ross, 2009). This

is not usually possible if the land is too small and squeezed up. When the land is small, the farmer will be limited on the number of hives to be placed in that piece of land.

It also dictates whether the land can be used purely for beekeeping or can be practiced with other farming methods. When the land is small, the farmer might be forced to practice several types of farming in the same land. For instance, some have to practice crop farming, animal husbandry as well as beekeeping. If for instance the farmer has several pieces of lands, he/she can decide to purely practice beekeeping on one piece of land but if he has one small piece of land, he/she will be forced to practice several types of farming methods in the same land (Abebe *et al.*, 2008).

Land tenure also influences the type of crops grown in a farm. There are crops which are friendly to apiculture and others which are not. An individual's cropping decisions is influenced by global commodity crop, markets and state policies (Carrol& Kinsella, 2013). Biofuel crops are not good for bees and if a farmer decides to grow them. This is because during growth, biofuel crops are sprayed with insecticides, herbicides and fungicides to control pests and diseases and also weeds which kills the bees through poisoning them. Because of high market demand land has been converted from growing bee-friendly covers to corn and soya beans which increase pesticide use which has lethal and sub-lethal effects on bees.

In most African communities, women's access and control over land is limited because land is usually passed to adult males (Kabarne, 2010). Women do not possess inheritance rights (Kachika, 2009). Land is usually transferred from a deceased man to his brother or nephew. This is in accordance with the decisions of the clan even in matrilineal clan (Stagey *et al.*, 2017). In Kenya, most communities have customary laws that prevent women from accessing and controlling land independent from their husbands and male relatives. For women, their land rights are compromised even when female headed households are at an increase (Lachampelle, 2008). This way, women's decision making on beekeeping is skewed since they do not possess any right to control land as a resource.

Despite the constitution providing for elimination of gender discrimination in land ownership and issues of inheritance, the society has not yet fully embraced this. There is resistance to women's ownership or inheritance of family land that is seen commonly as a preserve for

men. This was the case in the study area where women did not have a lot of say in what happens on family land. Many women reported that it was the role of their husbands to decide on what was to be put on the land and for the women, they would accept without questioning their husband's decisions.

2.8 Gender Roles and Women's Participation in Beekeeping

Gender roles are socially constructed roles, behaviours, activities and attributes that a given society considers appropriate for men and women (WHO, 2008). These roles are culturally specific. Traditionally, men and women had opposing roles. Men were seen as providers for the family and women were seen as caretakers of families and homes (Kioko, 2010). Families are constructed around relationships that involves responsibilities as well as status and power (Smith, 2012). Masculinity and femininity are constructed to generate rigid and narrow gender roles (Smith, 2012). Gender roles determine the responsibilities and tasks assigned to men and women in beekeeping. In the study area, women and men played different roles in beekeeping and these roles were strictly followed as it was considered a taboo for women to play men's roles and vice versa.

2.8.1 Gender Division of Labour in Beekeeping

In beekeeping, men and women were expected to play different roles since culture has made people to believe so. The roles that women were being assigned included cleaning of apiary, watering of the bees especially during dry seasons when water was scarce and honey processing which involved the extraction of honey from combs. Men on the other hand constructed bee hives, repaired them when they got spoiled, hung the hives, harvested the honey and in some cases sold the honey (Pactkenya, 2010). This was the case in the study area. Women do not take part in beekeeping because of lack of skills on bee farming, cultural constrains, prohibition by culture from climbing up trees among other (Carrol & Kinsella, 2013).

2.9 Theoretical Framework

The study adopted two theories namely: the culture theory and the liberal feminism theory in its analysis of the problem at investigation.

2.9.1 Culture Theory

Culture theory has its roots in cultural anthropology, especially from the work of Mary Douglas. According to Douglas and Wildavsky (1983) culture theory maintains that in every society, several biases exist, some of which have pronounced effect on the rate of social change. Culture theory starts with the assumption that individuals within a society have very different norms values and customs on how the society is supposed to be. Different ethnic groups have different 'cultural biases' or 'ideologies', which are socially created (Zwarteveen, 2008). These ideologies determine people's understanding of the world.

The cultural code sets the frame work within which structures of inequality are legitimized and transferred from one generation to another (Poku, 2006). According to Razavi and Miller (2007) a male-dominated culture underpins the socialization process making women subordinates over men. While women have equal rights as men over access and control of resources in reality customs often prevent women from taking de facto control of resources (Ross, 2009). The culture theory in this study was relevant as it helped to understand cultural biases on issues such as education and training, cultural stereotypes, land tenure systems and gender roles. In this respect culture theory enforced maintenance of status quo in socio-cultural issues concerning beekeeping. This theory does not talk about individual liberty when it comes to beekeeping. Women do not have the liberty on whether to practice beekeeping or not. That is a right given to men by the society and the culture. Since they do not have the liberty, their rights on beekeeping have been compromised. They cannot own bee hives or even question on the amount of honey harvested from the hives in the homestead (Chemurot, 2011). Women face a lot of discrimination when they try to question what culture dictates on matters beekeeping and this made the researcher to use the second theory in order to deal with unequal power relations in agricultural production below.

2.9.2 Liberal Feminism Theory

Liberal feminism is a philosophy based the principle of individual liberty and freedom of choice without interference of public law or opinion. Liberal feminists believe that inequalities of women arise from the denial of equal rights with those of men. Liberal Feminists argue that society holds the false belief that women are, by nature, less intellectually and physically capable than men. They argue that men are more privileged than women and thus fight for the extension of those rights and privileges to women. They push for the removal of discriminatory practice and policies such as those practices that hinder

women from practicing beekeeping among others. Liberal feminists did not regard men as the main problem but believed that men and women can work together to bring about change.

The relevance of Liberal Feminism theory can be seen where it advocates for equal rights for women in all sectors including beekeeping. If women were given equal rights with men, then they will be able to take part in economic activities including beekeeping. In the study area, women's rights were denied through the use of cultural beliefs, values, taboos and stereotypes that were used to control their behaviours. Culture set standards of behavior that elevated men and discouraged women from questioning that status quo. For instance, taboos that hindered women from counting the number of hives in a farm or inquiring on the amount of honey harvested falls in that category. Women can therefore work with men in bee farming to gain more knowledge on beekeeping and reap more profits. If given a chance, they could do a good job just like the men in the field of beekeeping.

2.10 Conceptual Framework

Figure 2.1 illustrates the relationship between the selected socio-cultural factors (independent variable) that affected women's participation in beekeeping. Beekeeping as a form of farming (dependent variable) and other aspects such as the government policy as well as access to extension services (intervening variable) of the study. The above factors influenced beekeeping either positively or negatively. This was because they influenced people's attitudes, beliefs, practices as well as social cohesion.

Change in attitudes on cultural stereotypes, beliefs and gender role assigned to women and men by culture can change people's attitudes towards beekeeping. A higher level of training could help in widening the scope and knowledge on beekeeping. The change in the way in which land tenure was transferred to family members was important in changing the cultural beliefs and attitudes that barred women from practicing beekeeping. This in turn could enhance the participation of both genders which enhances production.

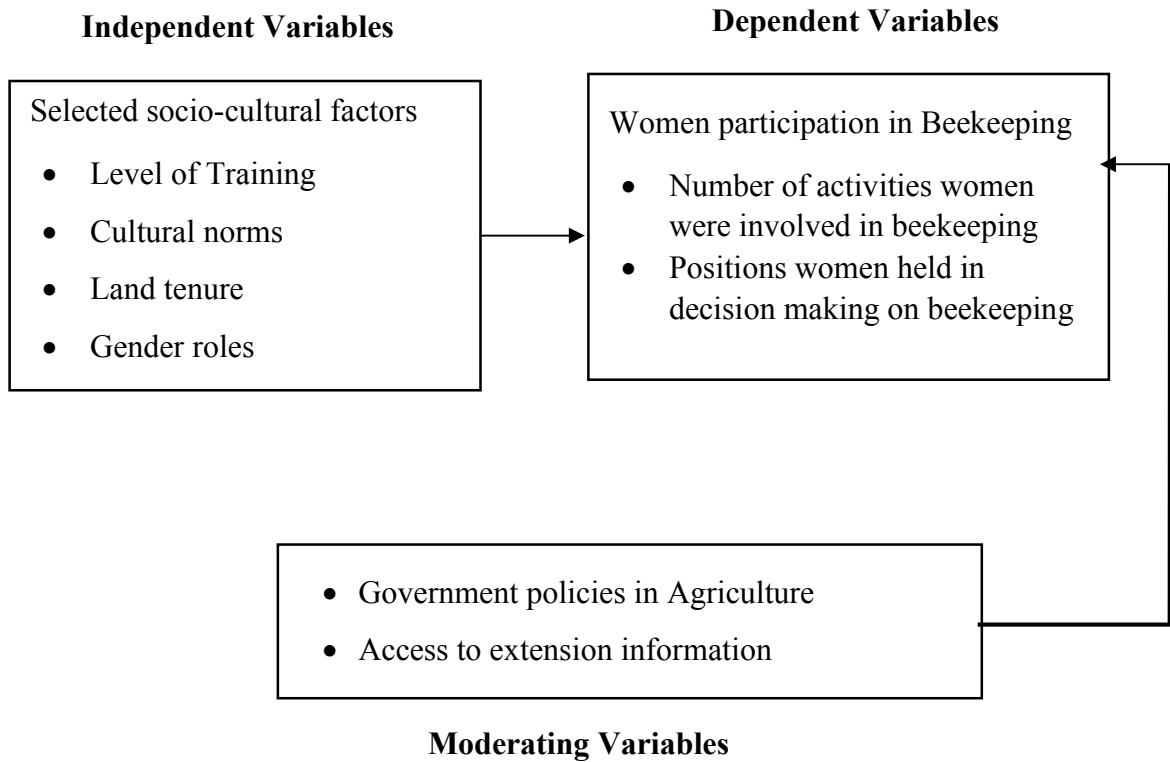


Figure 2.1 Conceptual Framework

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter describe the research methodology which was used in carrying out the study. It details various processes that were carried in the entire research period. It covers the research design, the location of the study, the population, sample and sampling procedures, the data collection instruments, data collection procedures and data analysis process.

3.2 Research Design

A research design is a blueprint for the collection, measurement and analysis of data (Kothari & Gaurav, 2011). This study adopted a survey research design. This is a non-experimental method that uses questionnaires and interviews to gather information (Orodho, 2004). According to Creswell *et al.* (2014), a survey research provides the researcher on information with emotions, knowledge, opinions as well as attitudes that the population under study has (Creswell *et al.*, 2014). Survey research design was the best for this study because it has several advantages which include the following: survey research was cost effective and enabled the researcher to collect information from a large population using relatively little amount of money compared to other research designs.

It was also an excellent way of gathering information from many people. For instance, the researcher gathered information from several areas of Baringo South Sub-County and this design allowed saving of time since a large group of people could be dealt with at a go. Another advantage was that the data collected could be generalized on the entire population. Survey was also a very reliable method since it had standardized questions. Survey could also be used by all kinds of people in all kinds of professionals. This research therefore used this design to investigate on the selected socio-cultural factors affecting women participation in Baringo South Sub-County.

3.3 Location of the Study

This study was conducted in Baringo South Sub-County in the following areas: Marigat Ward which comprises of the following areas, Koriema, Kimalel, Kibingor, Sabor, Ketemwa, Koitilion, Kabusa, Yatoi, Perkeria, Endao, Kaptich, Bekibon, Tinomoi, Muigutwo, Sogor, Tebei and Ilchamus. The researcher chose this area because of the existence of a conducive environment for bee production and the existence of inequalities in terms of gender

representation of the number of men and women in the field. These inequalities emanated from biasness of culture that has made women to view themselves as inferior and men as superior. Women in this area do not fully exploit the fact that beekeeping is a lucrative business opportunity which is highly profitable. Women are therefore disadvantaged compared to men in terms of their social status and rights. Many women are poor since they do not own many assets and other property including land resource which directly or indirectly influence beekeeping. Feminization of poverty together with negative cultural norms, values and ideologies have forced women to leave beekeeping for men. Women have also left the decision making roles in the beekeeping sector for men thus widening the gap between men and women in terms of the number of men and women in the beekeeping sector. Appendix A indicates the map of the study area. This location had a good representation of the target population and it is convenient to the researcher.

3.4 Study Population

According to Hisao (2009), study population is the group of interest to the researcher, the group to which the researcher is interested in and that which the results will be generalized. The study was conducted in Baringo South Sub-County in Baringo County. The total number of females in Baringo South Sub-county as per KNBS (2010) are 276,480. This acted as the target population. The accessible population of this study was all women beekeepers above 18 years in the Sub-County. The women estimated to be beekeepers in Baringo South Sub-County were about 700 in number. The study sample framework was drawn from the accessible population. The chairs of the women groups available in the Study area and the branch manager of an NGO in the area were included in this study.

Table 3.1 Accessible Population and Sample Size

Area of Study	Accessible Population of Area	Sample Size
Group 1 Koriema, Kimalel, Kibingor, Sabor	190	38
Group 2 Ketemwa, Koitilion, Kabusa	140	25
Group 3 Yatoi. Perkeru and Endao, Ilchamus	125	18
Group 4 Kaptich, Bekibon, Tinomoi	161	31
Group 5 Muigutwo, Sogor, Tebei,	84	16
Total	700	128

Source: (Baringo County Integration Development plan, 2019/ 2021)

3.5 Sampling Procedure and Sampling Size

According to Carron (2003), sampling procedure involves the study of people, objects, situations or events. Purposive sampling procedure was used to carry out the study. Quantitative sampling techniques was used whereby purposive sampling was used. A total number of 700 female beekeepers was used. Purposive sampling was used because it allowed the researcher to use cases that have the required information with respect to the objective of the study. Therefore, the participants was selected based on the level of training, cultural stereotypes of the Tugen community, land tenure systems present in Baringo South Sub-County as well as the gender roles of the women. Simple random sampling ensured equal chances to all women in representation of sample size.

The formula used will be Creswell (2007) formula to determine the sample size

$$n = \frac{NC^2}{C^2 + (N-1)e^2}$$

Where n=sample size

N=population (accessible population of 700)

C=coefficients of variation (25% was accepted by according to Creswell 2007)

e=standard error (0.02)

$$n = \frac{700 \times 0.25^2}{0.25^2 + (700 - 1)0.02^2} = 127.89$$

From the above calculation, 128 women were selected in all the areas of Marigat division and five chairpersons of the five women group in the Sub-County. The director of an NGO dealing with capacity building of bee farming in Baringo South Sub-County was also given a chance to fill the questionnaire. The total number of the respondents will come to 134.

From the list of 700 women, a stratified random sampling was used to select 128 respondents. Lottery technique was used to select the women. The researcher selected the names of each category of women depending on the area they come from then wrote on a slip of paper. Slips of papers were prepared for each category and inserted into separate containers and then mixed thoroughly and then they were drawn one by one without looking and without replacement until the required number of slips drawn. This ensured that the sample selection was independent of human judgment (Creswell, 2007) and that each number had an equal chance of being selected. The leaders of the five groups that practice beekeeping were given a chance to automatically respond to the study. The branch manager of a Non-governmental Organization (NGO) dealing with capacity building of issues of beekeeping as well as education and training was also be given a chance to respond to the study.

3.6 Research Instrumentation

Data was collected using a closed-ended questionnaire for the women respondents and interview schedules for the key informants who include the senior officials of the women groups as well as for the leader in charge of the Non-Governmental Organization dealing with capacity building on beekeeping matters in the study area. The test items were designed according to the research objectives.

3.6.1 Survey Questionnaire for the Respondents

A questionnaire is a self- report instrument used for collecting information needed (Creswell, 2007). According to Mugenda and Mugenda (2003), a questionnaire assures a high response rate and a minimum bias thus providing necessary explanations and giving the benefits of personal contact. In this research, the researcher used a self-administered survey questionnaire which will be administered to the selected 128 respondents. The researcher chose survey questionnaires because they were faster to administer and saved time for the

women especially considering the multiple roles of women. A questionnaire is accurate and can be used to generate sensitive information. The questionnaire contained twenty-four (24) closed ended questions which assisted the researcher gather information appropriately.

The survey questionnaire that the researcher generated was structured according to sections. Section A contained Demographic information; section B contained questions that discussed matters to deal with influence of training on beekeeping. Section C dealt with influence of cultural stereotypes on beekeeping sector, Section D dealt with influence of land tenure systems on beekeeping and finally section E dealt with the effects of gender roles on women's participation in beekeeping.

3.6.2 Key Informant Interview Schedule

The purpose of the interview in this study was to give the key informants an opportunity to explain issues concerning beekeeping in depth. The chairs were usually well conversant with the group challenges and were in a better position to discuss them well. The branch manager explained how each group took the trainings the organization gave to the women and whether any positive impact was being realized since they visited to the area. The interview schedule contained fourteen (14) open ended questions which were explained by the interviewees to the best of their knowledge. This also enabled the researcher to collect in-depth information from the respondents who were well versed with matters to do with beekeeping. This enhanced a deep understanding on beekeeping and the challenges that women faced as they tried to practice it.

3.7 Pre-testing

Before the actual data collection, the researcher conducted a pre-testing in Baringo North Sub-County. This is because Baringo North Sub-County had the same characteristics as Baringo South Sub-County and that beekeeping was also practiced in the area. Another thing was that women were not so much involved in beekeeping just the way it was in Baringo South Sub-County. The researcher used ten percent (10%) of the sample. Stratified random sampling was used to select thirteen (13) women beekeepers who participated and ensure equal representation of women beekeepers in Baringo North Sub-county County. The adopted a minimum number for use as recommended by Mugenda and Mugenda (2003). The sample was not part of the final population. The purpose of pre-testing was to assure on validity and reliability of the instrument.

3.8 Validity

According to Creswell (2009), validity is concerned with whether the findings are really about what it appears to be. It refers to the extent to which data collection method accurately measured what it was supposed to measure (Bryman, 2004). According to Mugenda and Mugenda (2003), internal validity is concerned with the extent the study establishes the factor that causes an effect. Content validity was used to establish whether the questionnaire accurately measured what was in the objectives. Validity is established by the expert judgment (Orodho, 2004). The researcher used relevant items that captured all the objectives in order to ensure that valid data was obtained. To ensure the instruments were valid and appropriate for the research, the researcher gave the supervisors and experts from the department of Women, Gender and Development of Egerton University to view them and advice the researcher appropriately. Instrument validity was carried out to enhance effectiveness of the research by ensuring that the researcher collected relevant data.

3.9 Reliability

According to Creswell (2009), reliability refers to the degree to which data collection method will yield consistent findings, similar observations would be made or conclusions reached by other researchers. It also proved if there was transparency in how sense is made from the source. Carron (2003) defines reliability as many things that people do but, in most contexts, it is the notion of consistency. An instrument is reliable if it produces the same results after a repeated trial (Mugenda & Mugenda, 2003). If the same results under the same conditions are obtained over time, then the measuring instrument is considered to be reliable (Orodho, 2003). According to Kothari and Gaurav (2014), each response to an instrument can have some random error. Therefore, an instrument should minimize the measurement error to ensure that the relationship between the true score and the observed score is strong.

The researcher carried out a pre-test which enabled the researcher to assess the test items so as to judge whether the instrument used was reliable or not. Pre-testing therefore helped to access the reliability of the test items by measuring the adequacy or vagueness of the instruments. This enabled the researcher to modify and improve the quality of the research instruments to increase their reliability. After the pre-test, reliability of the instruments was estimated using a correlation coefficient formula. A reliability coefficient of 0.83 was found which was above the threshold of 0.7 and therefore considered good and were reliable measure for the research.

3.10 Data Collection Procedure

The researcher sought for an introductory letter from the University's graduate school which facilitated the issuance of research permit from the National Council for Science, Technology and Innovation (NACOSTI). The researcher took the permit from NACOSTI to the County Commissioner and County Director of Education, Baringo County and to the Deputy Sub-County Commissioner before commencing the research. The researcher visited the extension officers and organizations that dealt with beekeeping to familiarize herself with the study area and informed the respondents and explained to them the purpose of the study. Modalities for collecting the required data was discussed and agreed before the researcher embarked on the study. A set of survey questionnaires and interviews schedules were administered to the respondents.

In order to ensure high level of response, the researcher visited all the respondents and the instruments were administered by the researcher personally. The researcher explained how to fill the questionnaires and interview schedules to the respondents. The purpose of administering the questionnaires and the interview schedules personally was to avoid chances of misinterpretation of the items due to illiteracy as well as to solve problems of time and cost of travelling back to collect them. The instruments were then organized and then scored ready for analysis. Respondents were assured of confidentiality of their participation.

3.11 Ethical Consideration

Ethics is a branch of philosophy which deals with one's conduct and serves as a guide to one's behaviour (Mugenda & Mugenda, 2003). This is because research deals with human beings to provide information needed by the researcher. Researchers are human beings who are concerned with other people's quality of lives and therefore they must have integrity and should not undertake research for personal gains. Ethical consideration was important in this research because it dealt with women beekeepers who were expected to give information to the best of their knowledge.

The researcher sought for an authorization letter from Egerton University ethical committee prior to conducting the research. This enhanced the privacy and the safety of the respondents. The researcher encouraged voluntary participation and assure the respondents on confidentiality in all the activities of the research. The researcher also explained clearly to the

respondents on their protection, minimal risk for participating in the study and the fact that all the information was to be kept with confidentiality.

To enhance privacy, the researcher did not require the participants to indicate their names on the research instruments. The raw data, information and the statistical analysis was kept in a safe custody with strict passwords on the SPSS templates and was burned in a disc and kept safely by the researcher.

3.12 Data Analysis

Before data analysis, all the questionnaires were checked to determine the completeness. The instrument were coded to facilitate analysis. Specific objectives stated in chapter one called for different statistical analysis. Descriptive analysis widened the understanding of the socio-cultural factors influencing women's participation in beekeeping. The qualitative data was analyzed using content analysis whereby results were presented in form of quotes and narratives as well as the use of ordered logistic regression to determine whether or not there was an influence of training, gender stereotypes, land tenure and women's gender roles on bee keeping sector. The statistical level for rejecting or accepting the hypothesis of the study was 5% alpha level. Analysis of data was performed with the help of Statistical Package for Social Sciences (SPSS) computer program version 25. The data has been presented in tables, charts and figures.

3.13 Analytical Framework

3.13.1 Estimating the Selected Socio-cultural Factors Affecting Women Participation in Beekeeping

The objective of the study was to analyze the selected socio-cultural factors affecting women participation in beekeeping. The decision to participate in Beekeeping depends on the costs and benefits of the venture. The participation depended on gender roles, training, land tenure and cultural norms. The decision to participate in beekeeping is based on the women practical and strategic gender needs. Women participation in beekeeping was modeled using ordered logit regression. Ordered logit regression involves a dummy dependent variable where the participation is based on women practical and strategic gender needs as shown below:

$$y_{1i} = 1 \text{ if } x_1 + x_2 \dots\dots\dots(1)$$

Where, y_{1i} represents women participation and $y_{1i} = 0$ women not participation in beekeeping. The actual level of women participation by individual women farmers is observed.

Where y_{1i} is a dummy participation variable, x_1 is a vector of explanatory variables influencing the decision to participate in beekeeping such as level of training, gender roles, type of land tenure and cultural norms.

Definitions and Measurement of Explanatory Variables

The Dependent Variables of the Study

The dependent variables of the ordered logit model take a linear equation i.e. whether a farmer participant in beekeeping or not, which are coded as 1 and 0 respectively. The ordered logit model was used to determine the socio-cultural factors influencing women participation in beekeeping. The variables included were; training, gender roles, type of land tenure and cultural norms

Table 3.2
Ordered Logit Model

Variables	Description	Measure	Expected Sign
Dependent Variable			
WPBK	Women and participation in beekeeping	Dummy (Yes=1 No=0)	
Independent Variable			
Training	Number of years completed in school	Continuous (0-22years)	±
GenderRoles	Gender roles	Dummy(1=productive, 2=reproductive, 3=communal)	+
LandTenure	Land tenure	Dummy (1=individual, 2=communal,3= leases)	+
CulturalNorms	Cultural norms	Dummy (1= women should not count hives, 2=should not own, should not harvest honey,4=should not climb trees)	+

The dependent variable of the study was women participation in beekeeping was hypothesized to be affected by a combination of factors which were level of training, land tenure, cultural norms and gender roles. The explanatory variables examined in the participation were:

Gender roles: females with heavy gender roles were less likely to participate in beekeeping as compared to male as a result of the burden of domestic and household chores unlike male.

Training: The level of training was used as a proxy for skill endowment. Training generally was expected to positively impact on participation. Training empowers members to analyze and utilize market information which could lower production and market risks in addition to reducing transaction costs.

Farm tenure: Women farmers with individual land tenure were hypothesized to participate and at high levels. While those with communal and leasehold have less probability of participating in beekeeping.

Cultural norms: women who are more tied to the cultural norms and stereotypes are less likely to participate in beekeeping than those who have shunned the norms and stereotype.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This study investigated the effects of socio-cultural factors in beekeeping among women in Baringo South Sub-County in Kenya. This chapter presents the results and discussion of the findings. The responses from the respondents were analyzed using descriptive and inferential statistics. A total of 127 out of 128 respondents were issued with the questionnaires. The response rate was 99% for the respondents who were issued with questionnaires. 8 out of 10 key informants were interviewed by the researcher thus bringing the response rate for the key informants to 80%. This is because the two who were missing were not present at the time the researcher was conducting the interviews.

4.2 Demographic Characteristics of the Respondents

The respondents of the study were female beekeepers in Baringo South Sub-County. The study gathered information on the respondents' demographic characteristics which included: age, marital status, level of education, current occupation, other agricultural practices ventured in, number of bee hives owned by each respondent, type of bee hives owned and monthly income from beekeeping. The analysis results are summarized below.

4.2.1 Respondents' Age

Majority (38.3%) of the respondents were aged 31 - 40 years. About 32.0% of the total respondents were aged 21 - 30 years while 20.3% were aged 41-50 years. There were very few respondents aged 51 years and above as shown in Table 4.1.

Table 4.1

Respondents' age brackets

Age brackets	Frequency	Percent	Cumulative Percent
21-30	41	32.0	32.0
31-40	49	38.3	70.3
41-50	26	20.3	90.6
51-above	12	9.4	100.0
Total	128	100.0	

From the study result, majority of the respondents were young women of the age bracket 31-40 years. This could be attributed to the availability of youth enterprise funds, women

enterprise funds, NGO development funds, collective action youth groups which has encouraged many women of that age to adopt beekeeping. Moreover, majority of these women were born in the study area and have learned that beekeeping is an economic activity which is not labour intensive with very few risks and uncertainty in production and is not capital intensive. On the other hand, there were a few respondents above the age of fifty years because respondents of these age reported not to benefit from the youth funds. Respondents of this age ventured into other farming methods like millet and sorghum farming because most older people in the study area owned relatively large tracts of land as compared to the younger generation.

The County Government in its Sustainable Development Programme (SDG) has promoted beekeeping among the youth as a way of employment creation and exploitation of opportunities due to the availability of a favorable climate that supports beekeeping. As a result of low employment rates and lack of access to credit, young women have resorted to beekeeping in the study area. From one of the key informants from Rosewo Women Group, *“young women have ventured in beekeeping for economic empowerment to minimize dependency on their husbands. This has reduced Gender Based Violence (GBV) at the household level.”*

The results are consistent with Qudus (2012) who found out that age played a role in honey production in India. Gradual exposure to modern techniques on beekeeping amongst the younger generation influenced their choices on matters to do with bee hive choices, methods of honey extraction, type of packaging used as well as the markets to sell their honey. The findings of this research thus concurred with past studies showing that age influences beekeeping to a large extent.

4.2.2 Marital Status of the Respondent

Majority (63.3%) of the farmers were married implying that most of the farming activities may have been targeted to benefit a number of household members. This is depicted in Figure 4.1.

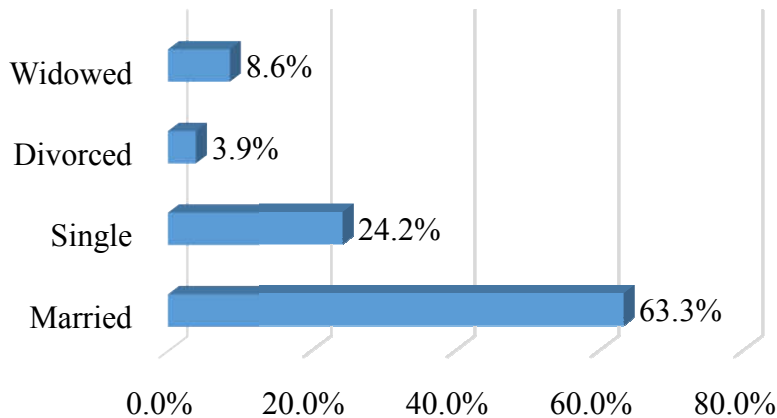


Figure 4.1. Marital Status of the Respondents

From the study findings, majority of the women beekeepers were married women. This can be attributed to cultural issues to access and control of land among women in the study area. Since beekeeping do not require a large space, women preferred practicing beekeeping than other farming activities. In the study area, women were encouraged to be married in order to access and control land. A key informant from Soi Women Group, “*Married women have formed groups which they carry out table banking where women are able to borrow some capital to start beekeeping activity.*”

A woman could easily access land while in a marriage set-up unlike when she was not. Culture affected utility of land in the study area. Some married women confessed to the researcher that they got part of their capital from their husbands who occasionally boosted their capital whenever they ran short of it.

According to Shire *et al.* (2016), land is accessed by women in marriage. Once a woman gets married, the land that is owned by her husband becomes a matrimonial property and can be accessed by the woman too. In case of a divorce or separation, the woman loses the right to access land. This argument is in agreement with the findings of this study. On the contrary, the findings of this research contradict with the findings of Alemayehu *et al.* (2016) who stated that women were not allowed to own property or make decisions on land use. This could be attributed to training that the women have been given over time that has encouraged them to take part in decision-making. The constitution of Kenya (2010) has also provided for elimination of all forms of discrimination based on gender and this has enabled women to be allowed to take part in decision making processes.

4.2.3 Level of Education of the Farmers

A cumulative of 76.6% of the total respondents had less than tertiary level of education as shown in Table 4.2.

Table 4.2
Respondents' highest level of education

Level of education	Frequency	Percent	Cumulative Percent
Non-formal	4	3.1	3.1
Primary	28	21.9	25.0
Secondary	66	51.6	76.6
Tertiary college	23	18.0	94.5
University	7	5.5	100.0
Total	128	100.0	

From the study results, majority of the respondents were literate as 51.6% of them had secondary level of education. Education levels had enabled women to venture into beekeeping as it was not labour intensive and did not require a lot of technical skills. Beekeeping was being promoted among women since it did not interfere with other career progression activities due to low labour requirements and less time consuming. Proceeds from beekeeping has enabled majority of the women to attend schooling thus promoting high literacy levels among the respondents.

Majority of the respondents attended the primary and the secondary level of education and did not attend transits tertiary colleges or universities. This can be attributed to many challenges such as early pregnancies, early marriages, peer influence to getting married early, poverty that forces many girls to give up on their studies, boy-child preferences, too many gender roles at home among other challenges. Those who had attended institutions of higher learning were fewer in the field of beekeeping because of time constrain. Most of them were learning from institutions far from their homes and on completion, the found employment in different counties far from their home county. Moreover, those who had just finished tertiary institutions were mobile and were busy looking for formal employment thus giving less attention to beekeeping.

According to Wadji *et al.* (2012), more educated farmers are likely to make better decisions as well as quickly adopt new technologies in farming as compared to their less educated counterparts. Abebe *et al.* (2008) also agree to this and argues that more and improved education translates to better decision making due to the acquisition of more knowledge which increases one’s intellectual capability on matters to do with beekeeping. These thus are in agreement with the findings of this research since most women who practiced beekeeping were learned and attended other trainings that capacity-build them on matters to do with beekeeping.

4.2.4 Respondents’ Main Occupation

Majority of the respondents in this study were self-employed. This is depicted in Figure 4.2.

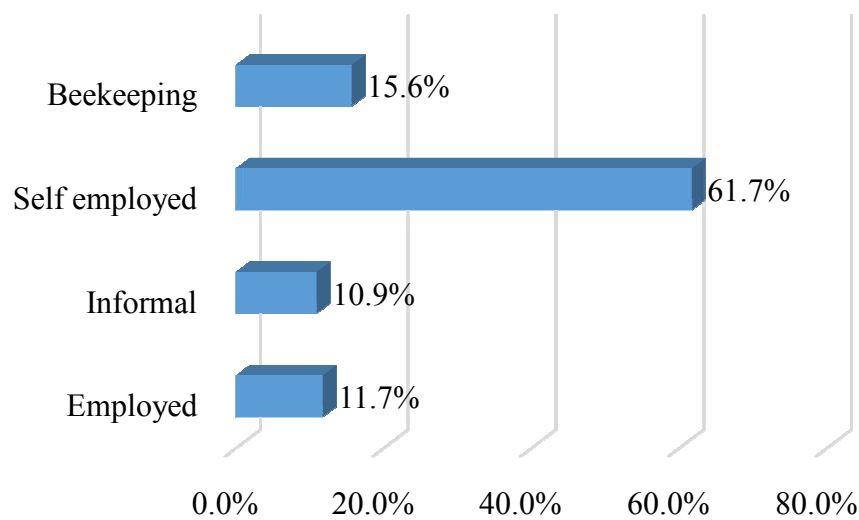


Figure 4.2. Respondents’ main occupation

From the study results, majority of the respondents (61.7%) were self-employed. Beekeeping had created self-employment among women in the study area. This could be attributed to several value addition opportunities that beekeeping provided. The respondents reported that beekeeping had created hawking of processed honey, production of wax products such as shoe polish and candles creating job opportunities. Since beekeeping is not labour intensive, women were able to carry out domestic chores and venture in other businesses. From the Key informant from Hand in Hand Organization, *“beekeeping is a flexible venture which allows women to generate income and diversify their economic activities. For instance, some women have ventured into operating green groceries, roasting maize, selling fruits among others.”*

More women were also self-employed because they preferred selling the honey they produced from their own hives. This way, they tend to fetch more profits than when they sold it to middle-men who bought it at a cheaper price. A few women were employed because many women had the primary and secondary school education only. For one to be employed in white color jobs, they have to have gone through a tertiary education where they specialize in a particular task. Most of these women stopped schooling at the secondary level and could not qualify to get white color jobs. Women also interacted with honey at their final stages of processing. This was because they were mostly the ones who did the value addition in most areas in Baringo South Sub-County.

This is in agreement with the Commercial Insect Report (CIP) report of 2017 that women are mostly involved in value addition of honey which is in agreement with the findings of this research. Ahikiriza (2016) asserted that different roles were assigned to different genders and women were given the role of value addition as well as branding and selling of honey. This therefore affirms the findings of this study.

4.2.5 Other Agricultural Practices Ventured in

All the respondents had diversified their agricultural activities by either venturing into: goat keeping, poultry keeping, crop farming, dairy farming or fruit production as shown in Table 4.3.

Table 4.3

Agricultural practices ventured by respondents

Activity	Frequency	Percent
Goat keeping	57	44.5%
Poultry keeping	29	22.7%
Crop production	22	17.2%
Dairy farming	12	9.4%
Fruit production	29	22.7%

From the study findings, majority of the beekeepers (44.5%) kept goats as well. The most ventured alternative from beekeeping was goat rearing. This was as a result of the habitat and the organized marketing of goats at the Kimalel market auction. Moreover, in the study area, women were allowed to rear small ruminant animals. Poultry keeping was the second popular

venture as they were kept in a free range and fed on termites and kitchen remains. Dairy farming was the least due to climatic conditions, pest, and diseases and was a male dominated venture. Small animals were female dominated since it was easier for the women to market them.

This study found out that many farmers kept goats together with beekeeping because goats survive well in dry areas where beekeeping is practiced. Goats can eat shrubs and can survive on little amount of water as compared to larger animals who required a lot of water for survival. A study done by the republic of Kenya in 2013 affirms the findings of this study by asserting that Baringo County is an ASAL area and most people keep goats to enhance their food security since goats can survive well in dry areas and are also hardy animals who can survive the harsh climatic conditions of the area.

This study sought to determine the number of hives owned by the respondents. The results are summarized in Table 4.4.

Table 4.4
Number of hives owned by the respondents

Number of hives	Frequency	Percent	Cumulative Percent
1-10	86	67.2	67.2
11-20	26	20.3	87.5
21-30	8	6.3	93.8
31-40	3	2.3	96.1
41-50	4	3.1	99.2
51- above	1	.8	100.0
Total	128	100.0	

Majority of the respondents (67.2%) had installed 1-10 hives in their apiaries. This can be attributed to lack of capital and few flowering plants due to the ASAL nature of the study area. Majority of the respondent had a few bee hives because the hives were not readily available in the area. The people who constructed the log hives which were widely used in the area were few. Moreover, constructing a log hive takes quite some time and uses a specific type of trees which are scarce in the area. Another factor was the scarcity of land which came as a result of land fragmentation and forced people to own smaller pieces of

lands had prevented many farmers from putting many beehives in their farms. Some farmers opted not to keep bees if the land was too small because bees are known to be very aggressive and could cause harm to man.

According to Abebe *et al.* (2008), land fragmentation affects beekeeping and has made many farmers to give up on beekeeping. Ross (2009) in his book argues that smaller pieces of land discourage beekeeping as it limits the number of beehives placed in farms. This research is in agreement with the findings of other researchers that land fragmentation is a set-back in beekeeping since it has limited many women from practicing beekeeping.

Starting capital was also a problem to many female beekeepers. According to Ahikiriza (2016), many women lack credit to buy many beehives. The little they get is mostly used to buy food to feed the family. Some women who were single mothers, divorced or separated had been left to run their families on their own and lacked support from anyone. Therefore, they had to budget the money they got in beekeeping to cater for all the family basic needs. This research is in agreement with other researchers finding on the number of beehives owned.

Respondents were asked to indicate the different types of hives that they use in their beekeeping. The results are summarized in Table 4.5.

Table 4.5

Types of hives owned

Types of hives	Frequency	Percent
Log hives	110	85.9%
KTBH hives	21	16.4%
Langstroth hives	23	18.0%

From the study results, majority of the respondents (85.9%) had log hives. Log hives were therefore popular among the respondents and could be attributed to their advantages such as being cheap, easy to maintain, conducive to the prevailing weather conditions of the study area and did not require technical skills to construct them. Langstroth and KTBH hives were used by a few respondents because they required establishment of an apiary, technical skills and capital to establish. During harvesting, farmers found it easier to open a log hive since it

was not complicated. The colonies in each log hive were also manageable since a log hive was smaller and could accommodate fewer number of bees as compared to other types of beehives. Moreover, for farmers who were interested with wax production, the log hive was the highest in the production compared to the modern hives. This had also attracted some farmers to prefer log hives to other types of bee hives.

According to Riana (2015), most farmers in Baringo County use log hives. This is in agreement with the findings of this research. However, the findings of Muli *et al.* (2015) contradicts these findings by stating that most farmers preferred box hives to log hives. The farmers in the study area were certain that box hives were better than the log hives because of their high quality and quantity of honey but they were limited by many factors which included poverty as well as unavailability of the box hives. The box hives were quite expensive as compared to log hives that could be constructed locally. For the women, feminization of poverty has pushed them to use log hives because they could not afford the expensive box hives.

The Republic of Kenya Report (2013) talks about the support given to the farmers by the government. This statement is not in agreement to the findings of this research because the respondents clearly indicated that trainings and capacity building had been left to well-wishers and NGOs and the government was doing very little when it came to the same. Respondents were requested to indicate their income from bee keeping and the results summarized in Table4.6.

Table 4.6

Monthly income from bee keeping

Monthly income	Frequency	Percent	Cumulative Percent
1-5000	78	60.9	60.9
5001-10000	29	22.7	83.6
10001-20000	16	12.5	96.1
20001-30000	4	3.1	99.2
40001-above	1	.8	100.0
Total	128	100.0	

From the study results, majority of the farmers (60.9%) earned less than 5000 shillings per month from beekeeping. This was because most of them owned a fewer number of beehives; between one to ten. Moreover, most farmers sold their honey without processing it. When honey was sold without any form of value addition, it fetched little amount of money as compared to the processed honey. Some farmers preferred selling their honey unprocessed due to lack of processing equipment used for value addition. Some farmers produced little amount of honey such that they found it more costly and time consuming to process it. Some brokers buy the honey while raw so that they could process it by themselves and fetch better profits. In some families, honey was used for domestic purposes as food, medicine and sweetener. This reduced the amount of honey sold to earn income for the family.

Affogonon *et al.* (2015) in his study found that women in beekeeping were facing a lot of time management issues. Most of them did not have time to for other things apart from gender roles. According to Mosser (2005), women have multiple roles that take most of their time and therefore most of their time is used for doing reproductive roles other than productive roles. This research therefore is in agreement with the findings of other researchers like Affogonon and Mosser.

According to Commercial Insect Report (CIP) of 2017, farmers who use modern bee hives have a better production but because women in Baringo South Sub-County used the traditional hives, their honey production was low.

4.3 Influence of Level of Training on Women Participation in Beekeeping

This study sought to determine how level of training affected women participation in bee keeping in Baringo South Sub- County.

Respondents were asked whether they had received any form of training on beekeeping and management of bees. The results are shown in Table4.7.

Table 4.7

Training on beekeeping and management of bees

Respondents' training	Frequency	Percent
Yes	76	59.4
No	52	40.6
Total	128	100.0

From the study results, most women attended the trainings that were brought to them by NGOs because of the desire to improve their production. About 59.4% of the women agreed that they had received training. Women who never received training was as a result of gender roles, low level of education and lack of awareness on trainings. The many gender roles (productive, reproductive and community development roles) women did were carried out at the same time as the trainings on beekeeping when most women were engaged in domestic chores. Moreover, some women did not attend the trainings because they had young children who cried during the training time and ended up disturbing them. Most of the women with young children preferred missing the trainings until the babies grew up to an age where they could be left with other siblings or with house-helps.

From the interview schedule, the respondents from Simotwe Women Group outlined that, *“trainings, seminars and workshops were there though not done regularly. Those who trained the beekeepers were mostly NGOs like the Hand in Hand which had started projects to assist the farmers in building new knowledge and to adopt new technologies that could help them improve their production level. These trainings major on bee management, harvesting and also on value addition and packaging of the honey. This has enabled women to sell honey at good prices.”*

Another respondent in an interview schedule reported that, *“the county government of Baringo has neglected issues of beekeeping. She further says that she has never met a government extension officer who deals with beekeeping matters. She only see those who are concerned with goat keeping, millet and sorghum production and no one is concerned about them.”*

The results therefore show how the county government of Baringo did very little on matters to do with beekeeping.

Beekeepers had a big challenge in accessing the extension workers because they hardly visited the areas. The county offices were far from where the participants lived and practiced beekeeping. Gemechis (2015) in his study found out that women are hindered by many gender roles as far as beekeeping is concerned. According to Gemachis, a woman with a baby finds it challenging to practice beekeeping because of time factor. Oduol *et al.* (2015) in their study also found out in their research that time constrain is one big problem for women who practice beekeeping. These findings are in agreement with the findings of the researcher in

this research. From an interview schedule, a respondent from Rosewo Women Group reported that, *“she only attends trainings when she gets time and when schools were closed and older children were at home for holidays.”*

To this respondent, she attended trainings when her older children were there to assist her carry out some gender roles.

Respondents indicated their area of training and the results summarized in Table 4.8.

Table 4.8
Areas of training on beekeeping and management of bees

Areas of training	Frequency	Percent
Establishment of apiary	41	32.0%
Management of beekeeping	61	47.7%
Honey processing	68	53.1%
Honey harvesting	40	31.3%
Honey marketing	41	32.0%

The findings of this research indicate that majority of respondents in this research had received training on honey processing. Most respondents attended trainings on honey processing specifically because it was a gender role that culture allowed women to carry out as far as beekeeping was concerned. Most of the roles were done by men since beekeeping was believed to be a male’s field. Women also showed a lot of interest in honey processing because it was through honey processing that honey could be sold at better prices since processing was a form of value addition. It was also a task that did not require a lot of energy or technicality and could easily be done by women.

Training on honey processing and value addition enabled women learn on safe ways of handling honey as well as importance of adding value to raw honey. It would also increase the prices of honey when they sold it and therefore enabling them fetch better profits. From an interview schedule, a respondent stated that, *“she attended the seminars because she was interested with knowing how to process her own honey. The technology on the use of a centrifugal extractor has made her work very easy since it was fast and produced a higher quality of honey. The combs do not get destroyed and she could return them to the bee hive*

while still intact. This gives her colony an easier work because they would just fill in new honey and would not waste time constructing new combs.”

Mburu (2015) in his study found that the introduction of better technologies for example the ones on value addition results to better honey production and more profits. This study therefore is in agreement with the past research done by other researchers. Uemastu and Msihrah (2010) found out in their study that farmers with higher education have better access to information and knowledge that are beneficial to farming operations. This is because they tend to possess a higher analytic capability of information and knowledge necessary to successfully grasp and implement new technologies.

Table 4.9
Opinions on bee keeping trainings

Opinion	SA	A	U	D	SD	Total	Mean	Stdev
Bee keeping training is beneficial to women	57 (44.5)	63 (49.2)	1 (0.8)	6 (4.7)	1 (0.8)	128 (100)	4.320	0.783
Bee keeping training is done regularly	10 (7.8)	28 (21.9)	9 (7)	62 (48.4)	19 (14.8)	128 (100)	2.594	1.207
Bee keeping training is relevant in improving the practice	30 (23.4)	80 (62.5)	3 (2.3)	15 (11.7)	0 (0.0)	128 (100)	3.977	0.855
Bee keeping training improves production	36 (28.1)	84 (65.6)	3 (2.3)	2 (1.6)	3 (2.3)	128 (100)	4.156	0.747

Key: SA - Strongly Agree, A – Agreed, U – Undecided, D – Disagree, SD - Strongly Disagree

Respondents were asked to indicate how beneficial the training was and the results from the study findings indicated that those who attended the trainings strongly agreed that the trainings were beneficial because it was through the trainings that they learned a lot of new knowledge on new technologies and modern methods of value addition. Those who agreed were the highest and had a mean of 4.3 which was a good prove that the respondents truly agreed to the opinion. A respondent from an interview schedule in Ilchamus reported that, *“the trainings she received from the seminars opened her mind and gave ideas that have enabled her to increase the number of bee hives that she owned as well as finding new*

markets for her honey and wax. To the respondent, the trainings and seminars added a lot of value to her business.”

According to Carrol and Kinsella (2013), training is very important and is a requirement for knowledge transmission. Those respondents who are learned can easily adopt new technologies when compared to those with little education. Qaiser *et al.* (2013) postulates that lack of knowledge hinders women from proper decision making as far as beekeeping is concerned. Akudugu *et al.* (2012) found out in their research that households with more years in education and trainings on beekeeping have more information and can accept information easily when compared to those with little education. Therefore, this research is in agreement with the past researches carried out by other researchers on the fact that training on beekeeping is beneficial to farmers.

On the issue of whether beekeeping training was done regularly, this study found that majority of the respondents disagreed with this statement. Most of the respondents disagreed on these trainings were carried out by NGOs who came at specific times and followed the requirements of the objectives of the projects in their organizations as well as the availability of funds. The national government and the county government hardly carried out trainings. From the interview schedule, a responded reported that, *“the trainings were not regular at all and the beekeepers can stay for even six months without one. Trainings were done mostly when a new technology was innovated and the innovators wanted to implement or sale their ideas to the beekeepers. NGOs would be used to carry out the training and the farmers would buy their products if they gain some interest. An example of such a project was the introduction of the Langstroth bee hives and the modern centrifugal extractors.”*

When asked to comment on the relevance of the training they had received, majority of the respondents agreed that training on bee keeping was relevant. The women who attended the training understood the content of the trainings and could put them in practice with ease. The content also touched on the practices they were carrying out on a day-to-day basis on beekeeping matters and had helped them improve their production.

When respondents were requested to indicate whether training improved production. Majority however agreed because it was evident that those who attended the trainings and followed the teachings of the trainings realized an increase in their honey production and

other hive products too. From the interview schedule, a respondent from Soi Women Group noted that, *“since she started attending the seminars on beekeeping, her production has doubled in amount because she introduced the box hives which are high yielding as compared to the traditional log hive.”*

Akudugu *et al.* (2012) in their research found out that the level of adoption of new technologies increased with exposure and acceptance to new practices. This has translated to better production to many farmers who have accepted the new technologies and have put whatever they learn into practice. According to Stagey *et al.* 2017, those who adopt new technologies have a better income than those who still use the traditional methods of beekeeping. This research got the same findings and is in agreement with other researches done on the past by other researchers.

Trainings on bee keeping were affected by a number of factors as summarized in Table 10.

Table 4.10**Issues affecting beekeeping trainings**

Statements	SA	A	U	D	SD	Total	Mean	Stdev
Gender roles affects attendance on training	27 (21.1)	59 (46.1)	4 (3.1)	28 (21.9)	10 (7.8)	128 (100)	3.508	1.261
Complexity of beekeeping content affects learning on beekeeping	10 (7.8)	45 (35.2)	13 (10.2)	47 (36.7)	13 (10.2)	128 (100)	2.938	1.202
The extension workers target men on beekeeping	16 (12.5)	28 (21.9)	10 (7.8)	37 (28.9)	37 (28.9)	128 (100)	2.602	1.422
Timing of the training affects participation	14 (10.9)	70 (54.7)	8 (6.3)	29 (22.7)	7 (5.5)	128 (100)	3.430	1.120
The relevance of the training affects participation	9 (7)	51 (39.8)	12 (9.4)	50 (39.1)	6 (4.7)	128 (100)	3.055	1.125
Training services are not accessible to most farmers	39 (30.5)	53 (41.4)	7 (5.5)	12 (9.4)	17 (13.3)	128 (100)	3.664	1.358
The training content is not written in local language	26 (20.3)	67 (52.3)	8 (6.3)	12 (9.4)	15 (11.7)	128 (100)	3.602	1.244

Key: SA - Strongly Agree, A – Agreed, U – Undecided, D – Disagree, SD - Strongly Disagree

Respondents were asked to indicate issues affecting training. The findings of this study indicated that majority of the respondents agreed with the statement that too many gender roles was a challenge to beekeeping trainings. Women performed both domestic chores, crop and livestock production chores as well as beekeeping activities. They had the highest burden which restricted their movement, attending of other training or empowerment activities. They also reported that the heavy burden on the gender roles restricted mobility of women to migrate in-order to look for honey from other places when production was off season in the study area. Majority of the women agreed that gender roles affected trainings because the trainings were conducted in morning hours when the women were busy carrying out gender

roles. From the interview schedule, a respondent from Hand in Hand organization stated that, *“it is a challenge for many women to manage their time and ensure that they attend trainings especially if they are done in the morning hours. Most gender roles such as nurturing of children, herding of animals or cleaning are mostly done in the morning when the trainings are taking place. Therefore, most women are forced to miss trainings.”*

Women were not allowed to stay overnight especially when it came to prolonged trainings that required more than one day and boarding. They reported that their husbands could not bear to undertake their daily gender roles on their behalf as cultural norms prohibit them from carrying out the activities.

Respondents were asked to indicate whether the complexity of beekeeping content affected learning. From the findings of this research, majority of the respondents disagreed with the statement. This was because whatever they learned during the trainings was what they were experiencing in the farms as they practiced beekeeping. They could easily understand the content. The chair of Kibingor Beekeepers for development in an interview schedule stated that, *“when the trainers explain to them the processes involved in beekeeping in a consistent manner, they understood without any straining.”*

Respondents were asked to indicate whether extension workers targeted only men on bee keeping. About 28.9% of the respondents disagreed while a similar proportion (28.9%) strongly disagreed. (21.9%) of the respondents felt that the target were men. They believed so because of the influence of cultural beliefs that had made them believe that beekeeping issues were for men only. Those who strongly disagree had stopped believing in the stereotypes which was as a result of the enlightenment they had gotten from education and trainings they had attended in the past.

According to Pocol (2011), most trainings targeted men. This statement is in a disagreement with this research because most of the researchers disagreed and strongly disagreed to the statement. This was because women attend those trainings together with the men and they were not discriminated in any way. They sat with the men in the training sessions and were given the same practical to carry out and many women had benefitted from those trainings.

Respondents were asked to indicate whether timing of the training affected the participation of the beekeepers. Majority of the respondents agreed with the statement. Most trainings were held during day time when some of the women were herding goats or carrying out other gender roles like cleaning, washing clothes or even nurturing children. From the interview schedule, the chair of Young Women Caucus reported that, *“training time clashed with the time the respondent usually fetch water and firewood she normally sells along the road. Sometimes, she is left at a cross road as to whether she should attend the seminar and sleep hungry or go for firewood and sell it to get money to buy her children food.”*

According to Mulisa and Fedaku (2017), many women do not attend the trainings because of too much work in the households. Affagonon *et al.* (2017) also agreed to the fact that time constraint affects women in beekeeping. This research is also in agreement with this statement. Jiwa and Muga (2011) in their study found out that too many roles burred women from attending trainings like their male counterparts just the way the researcher in this study found out.

Majority of respondents agreed with the statement that the relevant of the training was a challenge in beekeeping. This was because some farmers attended the trainings and did not put what they learned in practice. Therefore, their production did not increase like for those farmers who followed the training content.

Majority of the respondents agreed with the statement that training services were not accessible to most farmers. Trainings on beekeeping in Baringo South Sub-County has been left to NGOs who depend on the availability of funds to conduct the trainings. Moreover, the trainings were held in churches and other social institutions which were far for some women as they live in very remote areas. This discouraged them from attending those trainings. The chair of Rosewo Women Group in an interview schedule reported that, *“she only attends those trainings when they are held at a nearby school and could not travel to far places because of her old age and her sick legs.”*

Qaiser *et al.* (2013) found out that the government has introduced programs in different counties to support beekeepers. This is not in agreement with what the researcher found out in this research because most trainings and support were carried out by NGOs and not the government agents.

According to Birhanu (2016), many women had a limited access to formal education. Formal education enabled a woman to know how to read and write. During trainings, trainers usually issue women with handouts and books and those with no education could not benefit from them. Ahikiriza (2016) in his study found out that gender biases also affected trainings whereby, the men were allowed to go for the trainings and the women were left at home to take care of children and the aged members of the family. The researcher in this study got the same findings thus indicating that this research was in agreement with other researches done in the past.

This study further sought to determine if language used in writing the training content affected beekeeping. Majority of the respondents agreed that training content was not written in local language. Most women were not understanding the English language that was used to write the content in the handouts which were used for training. From the interview schedule, a respondent reported that, *“some terminologies used in the English language were hard to be understood and when interpreted into the local Tugen language, the meaning changes completely. She further went on to explain that some trainers were not from the Kalenjin community and in case of such complex terms, they could not be interpreted for and some women failed to understand them.”*

Test of Research Question Q₀₁

Objective one was translated into the following research question:

Q₀₁: To what extend does education level influence women participating in bee keeping in Baringo South Sub-County?

The research question was tested using ordered logistic regression.

Table 4.11**Ordered logistic regression for the influence of training on women participation in bee keeping**

Women participation in bee keeping	Coef.	Std. Err.	z	P>z	[95% Conf. Interval]	
Level of formal education						
1=Primary	-1.174	1.184	-0.99	0.321	3.494	1.146
2=Secondary	-1.998	1.118	-1.79	0.074	4.189	0.194
3=Tertiary college	-2.645	1.172	-2.26	0.024	4.942	-0.349
4=University	-2.794	1.369	-2.04	0.041	5.477	-0.111
Specific training on beekeeping and management of bees	1.532	0.408	3.75	0.000	0.732	2.333
/cut1	-0.705	1.071			2.804	1.393
/cut2	0.705	1.071			1.393	2.804
/cut3	1.501	1.104			0.662	3.665
/cut4	2.012	1.139			0.220	4.244
/cut5	3.675	1.450			0.834	6.517

n = 128; Log likelihood = -115.75; LR chi2(5) = 24.1; Prob> chi2 = 0.000; Pseudo R2 = 0.349

The log likelihood for the fitted model of -115.75 and the log likelihood chi-squared value of 24.1 (p-value = 0.000) indicate that the parameters in the model are jointly significant at 5%. Pseudo R² of 0.349 confirms that the extent of women participation in beekeeping in the study area was well attributed to the level of education (level of education account for 34.9% of changes in the extent of women participation in beekeeping).

With respect to formal education, this study found that having of tertiary (college) and university level of education reduces the likelihood of women participation in beekeeping. The coefficients for tertiary (college) (-2.645) and university level of education (-2.794) are negative and significant at 5% level. This implies that possession of more formal education is attributed to non-participation in bee keeping. This is because those who have a higher level

of education have more opportunities of employment in the job market. They therefore prefer getting employed where they get a better pay than remaining in the villages to practice beekeeping. They move to towns where their job places are situated.

The results show that the coefficient for specific training on beekeeping and management of bees (1.532) was positive and statistically significant at 5% level. This implies that having specific training on beekeeping and management of bees increases women participation in beekeeping.

These results agree with Carroll and Kinsella (2013) who found that farmers education and training by extension officers and other stakeholders enable them to acquire new ideas that further enable them engage in beekeeping, improve their farming and get higher yields. The results are also consistent with Mburu (2015) who found that specific education in bee keeping technology enable farmers to produce more honey in terms of quantity.

Commercial Insect Report (CIP) report (2017) recommended farmers training on modern hives in order to have a positive effect in efficiency in honey production. After attending trainings, most farmers engaged in beekeeping and abandoned the traditional log hives in adoption the modern bee hives. According to CIP (2017), after being sensitized on good methods of bee keeping, farmers widened their knowledge on bee farming and participate in the practice more and more.

According to Akuduguet *al.*(2012), adoption of modern hives and extent of participation in beekeeping was associated with education of the household head. Households with more years of education were likely to have access to information and are therefore amenable to the acceptance of new practices.

Abebe *et al.* (2008) found that bee keepers who participated in Commercial Insect Programmes enhance their probability of participating in bee keeping as well as acquisition of necessary skills on improved beekeeping technologies either directly or through linkages to financial service providers. Farmers who attended the trainings were able to access services and acquire knowledge on how to get capital to start bee farming or expand their farming by buying more and better improved modern hives.

Wadji *et al.* (2012) found that education to bee farmers does not only result to expansion of one’s intellectual capability thus translating to better decision making but also more participation in the farming. Because of education, farmers acquire good perceptions that are informed by good decision making.

According to Stagey *et al.* (2017), farmers’ perceptions of applicable technology in bee keeping is significantly influenced by level of training and education. This perception as a result affects their decisions on whether to participate in beekeeping. Those who are learned take instructions as given and end up with a good harvest and higher yields.

4.4 Influence of Cultural Norms and Stereotypes on Women Participation in Beekeeping

The second objective was to examine the effects of cultural norms and stereotypes on women participation in bee keeping in Baringo South Sub- County. This objective was analyzed using ordered logistic regression.

Respondents were requested to indicate if they had any cultural beliefs and stereotypes that hindered them from practicing bee keeping and the results summarized in Table4.12.

Table 4.12

Existence of cultural beliefs and stereotypes against bee keeping practice by women

Existence of cultural stereotype	Frequency	Percent
Exist	106	82.8
Does not exist	22	17.2
Total	128	100.0

From the study results, (82.8%) of the respondents indicated that they had cultural beliefs and stereotypes that hindered them from practicing bee keeping. About (17.2%) reported that they were not affected by cultural beliefs and stereotypes in their beekeeping practice. Responses from key informants indicated that, “*several cultural stereotypes hindered them from fully exploiting beekeeping which included: women should not construct, repair or destroy a bee hive, women should not sit on bee hives, they should not climb up trees to hoist log hives, they should not harvest honey from the traditional log hives and the fact that women should not own a bee hive under their names.*”

Despite the cultural beliefs, beekeeping was being ventured by women in the study area as it was an economic activity. A respondent in key interview schedule reported that, “*most of these stereotypes favoured men and elevated them from women. Women were told not to own bee hives so that they don’t gain from beekeeping. Herself, she owned seven log hives and she was not dead yet. The only thing she could not do was to climb up a tree. She couldn’t do that because she admitted she too heavy but could have done if she was a bit lighter. She further went on to say that she also owned Langstroth hives of which at the end of it all, she harvests and sold her own honey. She thus affirms that there was nothing like death associated with women owning bee hives.*”

According to Riana *et al.* (2009), there existed cultural beliefs and stereotypes that hindered women from practicing beekeeping. The researchers found out that women are the gatekeepers of different cultures and are the one who ensure that cultural beliefs are passed from one generation to another. Some cultural beliefs and stereotypes prevent women from practicing beekeeping. Therefore, the findings of this research are in agreement with other researchers work. However, following the enlightenment from education and various seminars and training received by the women, such stereotypes are slowly fading away and more women are adopting beekeeping when compared to the past century. The findings are consistent with Mocoloo *et al.* (2013) findings that women in the 21st century are taking part in beekeeping for the purposes of income generation and improvement of their livelihoods. This has been experienced in the Lower Nyando and Baringo County.

In seeking to determine the extent of belief in cultural stereotypes on bee keeping, this study requested respondents’ opinion on a set of statements that depicted negative cultural stereotypes and the results summarized in Table 4.13.

Table 4.13***Respondents' opinion on cultural stereotypes on bee keeping***

Statements	SA	A	U	D	SD	Total	Mean	Stdev
1. Beekeeping is purely a male's role	18 (14.1)	34 (26.6)	6 (4.7)	20 (15.6)	50 (39.1)	128 (100)	2.609	1.553
2. No woman should own beehives because she will die	8 (6.3)	44 (34.4)	4 (3.1)	5 (3.9)	67 (52.3)	128 (100)	2.383	1.538
3. No woman should count the number of beehives because all the bees will abscond	7 (5.5)	42 (32.8)	14 (10.9)	12 (9.4)	53 (41.4)	128 (100)	2.516	1.442
4. Women should not climb up tree to hoist beehives since a calamity will be fold the entire community.	14 (10.9)	39 (30.5)	23 (18)	14 (10.9)	38 (29.7)	128 (100)	2.820	1.422
5. Bee stings kill women only	4 (3.1)	22 (17.2)	6 (4.7)	9 (7)	87 (68)	128 (100)	1.805	1.292
6. If a woman constructs or destroys a beehive, she will die.	7 (5.5)	37 (28.9)	9 (7)	9 (7)	66 (51.6)	128 (100)	2.297	1.471
7. A woman should not make any decisions concerning beekeeping. Only men should make them.	16 (12.5)	51 (39.8)	5 (3.9)	8 (6.3)	48 (37.5)	128 (100)	2.836	1.566

Key: SA - Strongly Agree, A – Agreed, U – Undecided, D – Disagree, SD - Strongly Disagree

From the study results, Majority of the respondents with a mean of (2.8) agreed and strongly agreed with the statement that a woman should not make any decisions concerning beekeeping (only men should make them). This could be attributed to the culture that has made most women to believe that the man is the sole decision maker of the family. From the key interview schedule, a respondent reported that, *“most of the women in her village have left most decision-making roles to their husbands who were the heads of the family and whatever the decision the man-made, the woman was obliged to follow it without questioning.”*

On the contrary, some respondents strongly disagreed and disagreed with the statement, respectively. Some women made decisions concerning beekeeping since some of them headed their families. Some women were either widows, divorced or even separated from their husbands and were left with the decision-making power on many issues including beekeeping.

The findings of this study indicated that majority of the respondents (39.1%) strongly disagreed with the statement that beekeeping was purely a male's role. This was one of the most disagreed stereotypes with a mean of 2.6. This was because most of the ladies especially those who were younger had attended school where some of the cultural beliefs were demystified. These findings contradict the findings of Mujuni *et al.* (2012) who found out in their research that the respondents they collected data from believed that beekeeping was a male's role. (26.6%) of the women agreed that beekeeping was a male's role and this could be attributed to the fact that most of the roles in beekeeping in the initial stages were done by men for instance construction of bee hives, hoisting of the hives, application of baits to attract the bees, repairing of broken hives and harvesting of honey. This has made many women to believe that beekeeping was a male's activity. From one of the key informants from Simotwe Women Group, *"culture has made beekeeping to appear as if it is a male activity and yet it was not. The Tugen culture discourages women from practicing beekeeping and has assigned all the major roles to men. Women came in during the final stages of honey processing and marketing."*

Abebe *et al.* (2008) and Akudugu *et al.* (2012) found out in their studies that many communities have abandoned various cultural norms and stereotypes that were retrogressive and that which barred women from taking part in beekeeping which is in agreement with the findings of this study. This difference exists because of cultural diversities whereby, different cultures have different cultural beliefs and taboos that ensure maintenance of those beliefs. Therefore, this study agrees to the findings that beekeeping is not a male's role and can also be practiced by women.

Majority of the respondents with a mean of (2.5) strongly disagreed with the statement that no woman should count the number of beehives because all the bees would abscond. This could be attributed to the fact that most respondents having basic education which has opened up their knowledge on cultural norms and stereotypes.

Majority of the respondents, (2.4) mean, strongly disagreed with the statement that no woman should own beehives because she will die. Those who strongly disagreed had attended formal education and training centers where they had been sensitized on misconceptions surrounding beekeeping. Those who were undecided still had a strong believe in the Tugen cultural beliefs and practices. From the interview schedule, a respondent stated that, *“no woman can die out of ownership of a bee hive. Those are just beliefs that should be demystified to encourage women to own bee hives. Most women in Koriema Women group own bee hives and are not dead yet. Women should be encouraged to own more bee hives and earn income out of beekeeping.”*

Many respondents, (2.2) mean, disagreed with the statement that if a woman constructs or destroys a beehive, she would die. According to Kugonza *et al.* (2009), women should not construct, repair or hoist bee hives. Mulisa and Fedaku (2017) supports the same statement of burring women from constructing or repairing bee hives. The researcher in this research found out that women do not support that stereotype and some of them already do the hoisting and repairing of their own hives. Therefore, the findings of this research do not concur with some researcher’s work. This could be out of the enlightenment the respondents got from attending trainings, capacity-building workshop as well as other educational institutions.

Majority of the respondents with a mean of (1.8) strongly disagreed with the statement that bee stings kill women only. Most women had been stung by bees and did not die out of the sting. From the interview schedule, a respondent outlined that, *“bee stings can kill everyone including men especially if one is stung by many bees but if it is only one or two bee stings that cannot cause death, not even to women. That belief was to scare women away and discourage them from practicing beekeeping.”*

Therefore, they did not believe in the stereotype. Another respondent in the interview schedule reported that, *“she used to fear bee stings when she started venturing into beekeeping but she later came to realize that bees do not sting unless they were disturbed.”*

A few respondents with a mean of (1.4) agreed with the statement that women should not climb up trees to hoist beehives since a calamity will be fold the entire community. This is because women believed that their dressing code could expose them to children and other

men who are not their husbands. Some women feared falling down from trees and that was the reason why most of them still believed in this stereotype. A respondent from the key interview schedules reported that, *“most married women in the study area did not wear trousers as trousers were associated with women with ‘bad’ behaviours like prostitution. Therefore, the dressing code (skirts and dresses) limits most women from climbing up trees because of privacy issues.”*

According to Muli and Frezier (2011), it is a taboo for women to climb up trees. Carrol and Kinsella (2013) found out in their research that women in most beekeeping communities were not allowed to climb up trees for safety purposes. Chemurot (2011) also agrees to this statement that women should not climb up trees. Therefore, the findings of this research concur with other researches carried out in the past on the prevention of women from climbing up of trees.

Qaiser *et al.* (2013) argues that most women are discouraged from beekeeping because of bee phobia. Raina *et al.* (2009) as well as Chemurot (2011) supports the same argument that *Apis mellifera*, which is breed in Baringo is a very aggressive type of a bee and is known to cause a lot of harm to people. Bees get aggressive only when they are disturbed. Women in Baringo South Sub-County agreed to the fact that the bee was aggressive but these women have devised a way of solving this problem. They have bought protective clothing to protect themselves from the bee stings and could harvest their honey by themselves.

Based on respondents’ responses on the set of statements included in Table 13, this study was able to generate a likert scale that ranged from 0 – 5 which was an indication of the extent of respondents believe in cultural stereotypes. The results are summarized in Table 4.14.

Table 4.14

Respondents rating on their extent of believe in cultural stereotypes

Scale	Label	Frequency	Percentage
0-1.0	Very Low	1	0.8%
1.1-2.0	Low	18	14.1%
2.1-3.0	Moderate	47	36.7%
3.1-4.0	High	45	35.2%
4.1-5.0	Very High	17	13.3%
Total		128	100.0%

N = 128; Minimum = 1.57; Maximum = 5; Mean = 3.631; Std. Deviation = 0.809

The study results indicated that about (36.7%) fall in the scale between 2.1 – 3.0 (which is an indication of moderate believe in cultural stereotypes). About 35.2% of the respondents who had a high believe in cultural stereotypes (scale of 3.1 – 4.0) as represented by 35.2% of the total responses. Respondents falling on a scale of 4.1 – 5.0 (representing very high believe in cultural stereotypes) comprised about 13.3%. Respondents falling on a scale of 0 – 1.0 (representing very low believe in cultural stereotypes) and 1.1 – 2.0 (representing low believe in cultural stereotypes) comprised about 0.8% and 13.3%, respectively. An average respondent in this study had a rating of 3.631 on a 0 – 5 Likert scale on believe in cultural stereotypes.

4.5 Coping Mechanisms with Cultural Stereotypes

This study sought respondents' response on a set of statements on coping mechanisms on cultural stereotypes. The results are summarized in Table 4.15.

Table 4.15***Coping mechanisms with cultural stereotypes***

Statements	SA	A	U	D	SD	Total	Mean	Stdev
Attending trainings on beekeeping	60 (46.9)	63 (49.2)	2 (1.6)	1 (0.8)	2 (1.6)	128 (100)	4.391	0.712
Benefits obtained from beekeeping	39 (30.5)	73 (57)	5 (3.9)	8 (6.3)	3 (2.3)	128 (100)	4.070	0.898
Climatic conditions of the area	20 (15.6)	71 (55.5)	14 (10.9)	19 (14.8)	4 (3.1)	128 (100)	3.656	1.015
Less capital investment	24 (18.8)	60 (46.9)	6 (4.7)	34 (26.6)	4 (3.1)	128 (100)	3.516	1.164
Seasonality of production	17 (13.3)	75 (58.6)	12 (9.4)	18 (14.1)	6 (4.7)	128 (100)	3.617	1.036
Few gender roles involved in production	23 (18)	53 (41.4)	12 (9.4)	36 (28.1)	4 (3.1)	128 (100)	3.430	1.168

Key: SA - Strongly Agree, A – Agreed, U – Undecided, D – Disagree, SD - Strongly Disagree

Majority of the respondents with a mean of (4.4) were noted to agree that attendance of trainings on bee keeping was a coping mechanism against cultural stereotype. This was because the respondents understood that in those trainings, people learnt new ways of practicing beekeeping as well as ways of improving the practice like issues on value addition. A respondent from an interview schedule reported that, *“the trainings according to most respondents were very helpful and had widened the scope of many beekeepers on better and more improved methods of beekeeping. Some women were slow in adopting new technologies in the past but in the recent past they are taking them seriously and are adopting them. The only challenge is the unavailability of the box hives which are not locally made and have to be bought from far off places. This slows their adoption rates and at times forces some women to use the traditional log hives.”*

Majority of the respondents with a mean of (4.1) agreed that benefits obtained from beekeeping attracted many women to venture into beekeeping. Honey is a very expensive commodity and could earn the women a good source of income if they ventured into it. The benefits from beekeeping lured many women into beekeeping. To many of them, it was a good way to supplement their income from subsistence farming and goat keeping. A

respondent from the interview schedule stated that, *“it was difficult for many women to raise enough money to pay school fees. Therefore, many women have adopted beekeeping as an alternative source of income for themselves and their families too.”*

Majority of the respondents with a mean of (3.7) agreed that climatic conditions forced many women to venture into beekeeping. Baringo South Sub-County is an ASAL area where crop production is hard to be practiced. Rainfall is very short and scarce and the sun’s rays is very intense and can easily destroy the crops. Many women were left with beekeeping as their major source of income. A respondent from an interview schedule reported that, *“the climate in this area is too dry and discourages me from venturing into crop farming. The rains are too short and the scarce. The sun is too hot too.”*

Most of the respondents with a mean of (3.6) agreed that seasonality is another reason why women preferred beekeeping to other types of farming methods. Honey was harvested at least three times in a year unlike crop which were harvested only once a year. This has made many women prefer beekeeping to other farming methods. Majority of the respondents with a mean of (3.5) agreed that less capital investment was one of the reasons that attracted women into beekeeping. Compared to other farming methods like crop production where irrigation was required, beekeeping required less capital to start and also little investment on maintenance. Majority of the respondents with a mean of (3.4) agreed that few gender roles involved in production was another factor that attracted women into practicing beekeeping. In an interview schedule, a respondent said that, *“she liked beekeeping because she could still work in the County Government and still practice beekeeping to generate more income for her family.”*

Once a beehive has been hoisted, there were little gender roles to be carried out in terms of maintenance. The hive was only inspected once a month to check if it had been invested by predators such as ants or wasps.

Tesfaye *et al.* (2017) found out in their study that seasonality of honey harvesting attracts many farmers to practicing beekeeping. Most of the respondents in this research agreed to the same statement thus showing that this finding is in agreement with other researches’ findings.

Test of Research Question Q₀₂

Objective two was translated into the following research question:

Q₀₂: How do cultural norms and stereotypes influence women's participation in bee-keeping in Baringo South Sub- County?

The research question was tested using ordered logistic regression. Table 4.16 shows how cultural norms and stereotypes influence women's participation in bee-keeping.

Table 4.16

Ordered logistic regression for the influence of cultural norms and stereotypes on women participation in bee-keeping.

Extent of women participation in beekeeping	Coef.	Std. Err.	Z	P>z	[95% Conf. Interval]	
Extent of believe in cultural stereotype	-0.524	0.246	-2.130	0.033	-1.007	-0.042
/cut1	-1.138	0.889			-2.880	0.603
/cut2	0.091	0.890			-1.654	1.836
/cut3	0.864	0.919			-0.937	2.665
/cut4	1.359	0.958			-0.518	3.236
/cut5	3.011	1.306			0.452	5.570

n = 128; Log likelihood = -123.83; LR chi²(1) = 4.72; Prob> chi² = 0.0298; Pseudo R² = 0.291

The log likelihood for the fitted model of -123.83 and the log likelihood chi-squared value of 4.72 (p-value = 0.0298) indicate that the two parameters are jointly significant at 5%. Pseudo R² of 0.291 confirms that believe in cultural stereotype by women in the study area was well attributed to the extent of women participation in beekeeping (believe in cultural stereotype account for 29.1% changes in the extent of women participation in beekeeping).

The results show that the coefficient for extent of believe in cultural stereotype was statistically significant at 5% level. The coefficient for extent of believe in cultural stereotype (-0.524) was negative which implies that greater believe in cultural stereotype reduces women participation in beekeeping. Based on these results, believe in cultural stereotype has a statistically significant influence on extent of women participation in beekeeping.

These results are consistent with Mujuni *et al.* (2012) in their study found that women faced many challenges which prevented them from taking bee keeping practice well. These challenges included the phobia of bee stings, multiple roles that took most of their time and the fact that honey harvesting was done at night when women were busy taking care of children and families. According to Muli and Frezier (2011) in most African cultures, women were not allowed to climb up trees and yet most hives were hoisted high up in trees. Likewise, Shackleton (2011) observed that women are prevented by culture from doing bee keeping practices. This prevents them from total control of bee keeping practice.

Chemurot (2011) found that because of cultural norms and beliefs, majority of the women in Baringo South Sub-County lacked basic education due to cultural practices favoring boys, few of them were able to participate in most farming practices, including bee keeping. This limits women active participation during siting hives, apiary management, honey harvesting as well as honey and bees wax processing. Ahikiriza (2016) found that among the Kalenjins of Kenya, it was a taboo for women to count the number of bee hives in the farm. It is believed that if they count them, all the bees will abscond and the farmer will not harvest any honey. Chemurot (2011) also seconded this statement that there was a belief among the Kalenjins that barred women from taking part in beekeeping. This reduced their participation in bee keeping. The researcher in this research found out that most respondents do not believe in these cultural norms as they consider them backward. Education has also enlightened the women on what they should believe in and what they should not.

Kugonza *et al.* (2009) further noted that some cultural norms that prevented women from constructing, repairing or hanging of bee hives were eventually a big reason why women participation in bee keeping was still low. Qaise *et al.* (2013) found that among the Kalenjins, it is a taboo for a woman to construct a bee hive. She should seek for assistance from a man. In absence of men, she should not attempt to do the work for she will be cursing herself and her family too. She cannot destroy or sit on a bee hive too because culture dictates that if she does so she will die. There was a clear limitation of women, through cultural norms and believe in bee keeping to the extent of not practicing the bee farming despite the advantages it has and the high profits too.

Mulisa and Fedaku (2017) observed that cultural norms and stereotypes negatively influence beekeeping. Culture among African communities dictates that wealth should be passed from

father to son. Women according to culture should not inherit property and this has resulted to widening of the gap when it comes to wealth ownership. Since many women do not own many assets, they cannot afford to raise the capital needed to start beekeeping. They therefore cannot become the owners of beehives but are employed to carry out managerial work like cleaning and maintaining the apiary.

4.6 Influence of Land Tenure on Women Participation in Beekeeping

The third objective in this study sought to demine how land tenure affected women participation in bee keeping in Baringo South Sub- County. In order to address this objective, a research question, “Does the type of land tenure affect women’s participation in bee-keeping in Baringo South Sub- County?” was coined and analyzed using ordered logistic regression.

4.6.1 Women Ownership of Land in the Study Area.

Respondents were requested to indicate whether women in the study area could own land and the results summarized in Table 4.17.

Table 4.17
Perception on whether women could own land

Response	Frequency	Percent
Yes	64	50
No	64	50
Total	128	100

The study results in Table 4.17 above indicated that (50%) of the respondents agreed that women could own land in their area. However, a similar proportion (50%) argued that women could not own land in the study area. From the interview schedule, a respondent explained that, “*many women accessed land in marriage. The have the right to plant crops in it, practice beekeeping in it but when it comes selling it, that right is withdrawn from them. Women cannot sell their husbands land because it is not in their names. The man has all the powers to sell it and not the woman.*”

4.6.2 Type of Land Tenure

This study noted that majority of the respondents owned as shown in Figure 4.3.

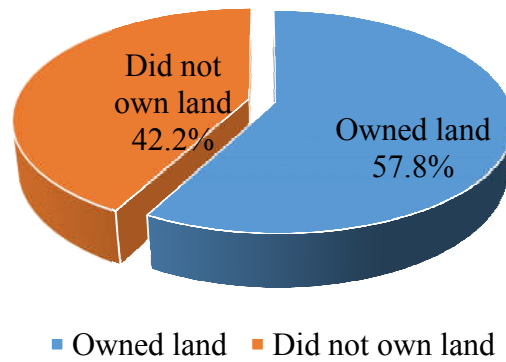


Figure 4.3. Respondents' land ownership status

From the study results rural women in all the communities in Baringo South Sub-County reported that land was controlled by men who decided on all transactions. Land was seen as a source of wealth and power at household level and at community level. The larger the size of land the wealthier the family and the smaller the size the less the family was seen as wealthy. The size of land and productivity were key factors that determined the type of agricultural production and scale of production. Those with small pieces of land diversified their production by integrating livestock production and crop production particularly sorghum, millet and groundnuts in order to increase their income levels. As a result of high unemployment in the study area men have dominated decision making on the utility of the land as it was the key factor of production. In the study area the rural women reported that women control land when they were either married, widowed or single based on the family background such as level on education, family norms and occupation of the husband and wife.

Most women in Baringo South Sub-County owned land through marriage. Culture dictated that once a woman got married, the land owned by her husband becomes a matrimonial property and a property for both the husband and wife. A few women had bought land for themselves although they still faced a lot of resistance from the men in the area. From the interview schedule, a respondent stated that, *“when women tried to buy land and register it under their names, the men in the area were hesitant. She further explained that she was a single mother and when she needed land to build a home for her family, a clan elder demanded that she should get married for her to access land in her husband’s premises. Her brother had to intervene and that is when she managed to buy her small piece of land.”*

Respondents in the study area owned land under communal, individual and lease systems as depicted in Figure 4.4.

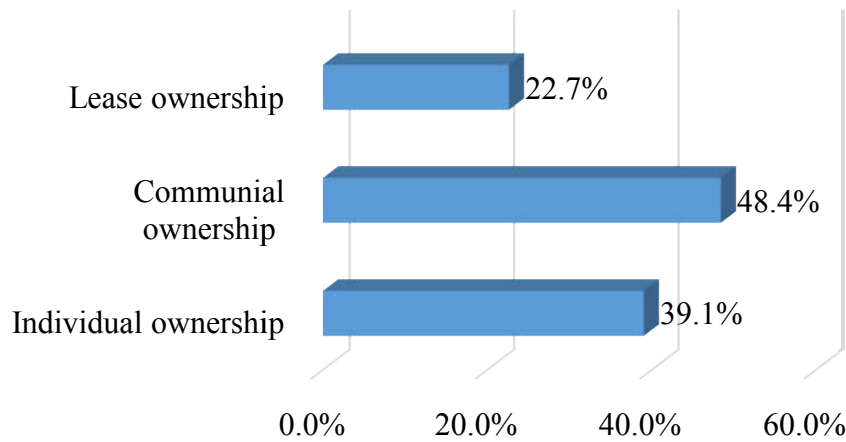


Figure 4.4. Category of land ownership

Majority of the respondents (48.4%) indicated that land was communally owned since most respondents lived in their ancestral lands which was under the names of their ancestors and older members of their extended families. This type of land was passed on from the grandfather to the father to the son to the grandson and so forth.

This study was further interested on how land ownership rights were transferred to women. The results are shown in Figure 4.5.

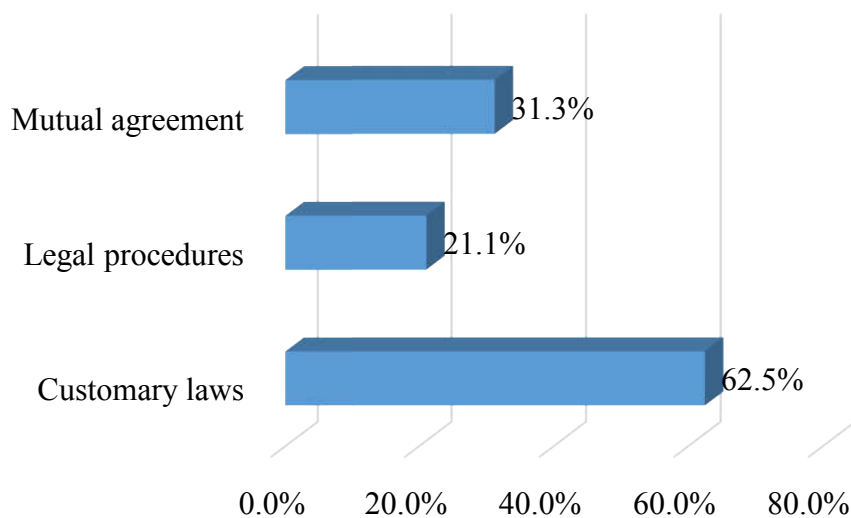


Figure 4.5. Means of transfer of land rights to women

Majority of the women (62.5%) were transferred land ownership rights through customary laws. From the study findings majority of women own, accessed and controlled land through inheritance which was a cultural way of passing ownership of land from one generation to another. Women have also been able to access and control land through leasing and the least way was through government allocation through land adjudication. Kenyan government has developed policy on land and women have equal rights to own, access and control land. In the study area land was still the ancestral land was mostly given to family members through inheritance. Ancestral land cannot be sold since it was believed to belong to the family members and not outsiders. A few women bought land for themselves but they faced resistance from the males in the area since they had to belong to those families for the land to be sold to them. Some family elders could decide to give land to their female relatives especially if they were not married or if they were divorced by their husbands. They did this through mutual agreements with the males of the families. Most of the communities in the study area had limited provisions for women to customarily inherit wealth and property including land.

A respondent in an interview schedule outlined that, *“the Kenyan constitution (2010) has helped women when it comes to land ownership rights. It is now a law that women can own property too and in case of disputes in land, women can seek justice in the court of law just like the men.”*

According to Kabarne (2010), land is passed to adult males; mostly from fathers to their sons. Girls in most communities are not given any pieces of land. Kachika (2009) in his study found out that women do not possess inheritance rights in many communities. Carrol and Kinsella (2009) in their study found out that women and girls suffer from inequitable land rights. This study found out that there exists inequality when it came to inheritance of land among the Kalenjins and thus is consistent with studies of other researchers.

Respondents’ perception about how land tenure influence beekeeping was sought and results summarized in Table 4.18.

Table 4.18***Opinions on how land tenure affected beekeeping***

Opinion	SA	A	U	D	SD	Total	Mean	Stdev
Land is a hindrance in beekeeping	8 (6.3)	58 (45.3)	6 (4.7)	46 (35.9)	10 (7.8)	128 (100)	3.063	1.176
Poor utility of land affects beekeeping	12 (9.4)	77 (60.2)	9 (7)	25 (19.5)	5 (3.9)	128 (100)	3.516	1.035
Land fragmentation affects beekeeping	14 (10.9)	79 (61.7)	5 (3.9)	25 (19.5)	5 (3.9)	128 (100)	3.563	1.048
The cropping systems in the land affects beekeeping	8 (6.3)	47 (36.7)	11 (8.6)	44 (34.4)	18 (14.1)	128 (100)	2.867	1.232
Access to land promotes women's access to beekeeping	30 (23.4)	82 (64.1)	1 (0.8)	11 (8.6)	4 (3.1)	128 (100)	3.961	0.934

Key: SA - Strongly Agree, A – Agreed, U – Undecided, D – Disagree, SD - Strongly Disagree

From the study results, majority of the respondents with a mean of (3.961) supported that statement that access to land promotes women's access to beekeeping. When women get a good access to land, they can decide to put more bee hives which will automatically translate to a higher production of honey at the long run.

This study found out that land fragmentation affected beekeeping. Land fragmentation discouraged beekeeping because a farmer could not mix beekeeping with other farming methods such as dairy or goat keeping in the same piece of land. Bees are very aggressive insects and could kill the animals. Bees cannot be kept in the resident area because they can kill people. From an interview schedule, a respondent responded that, “*small pieces of land discouraged beekeeping because if someone has a small piece of land where she lives with her family, she cannot keep bees there. Bees requires a silent place with minimal disturbance. Bees can become very aggressive when they are disturbed and can cause a lot of harm to both human beings and animals too.*”

Majority of the respondents agreed with the statement that poor utility of land affected beekeeping. Specifically, poor utility of land has affected beekeeping to a large extent. When land was left fallow and nothing planted in it, then it becomes a waste. Moreover, when toxic crops that do not support beekeeping were planted, then the bees were poisoned. This pulls beekeeping backwards since beekeeping requires the existence of many healthy bees to thrive. The use of green-houses discouraged beekeeping because the flowering plants were closed in the green houses and could not be accessed by the bees.

From the study results, land was a major hindrance for women to venture into beekeeping. This could be attributed to patriarchal system where men were favoured to own and control land. Most of the respondents (45.3%) agreed with the statement that land was a hindrance in beekeeping among women. A respondent in an interview schedule reported that, *“If a woman does not own land, she has no rights to make decisions on whether to plant crops, keep goats, and keep cows or bees in it.”*

Among the Tugens, land belongs to men and therefore women in marriage have to seek permission from their husbands to practice beekeeping in the piece of land owned by the family. If the man denies the woman the chance to practice beekeeping, then she lacks option and has to give up on beekeeping.

Most of the respondents, (2.867) mean, agreed with the statement that the cropping systems in the land affected beekeeping. Agro-chemicals posed a big threat to bees because they reduced their life expectancy through poisoning. Some crops grown by farmers took so long to flower and that meant when such crops were planted, the bees would lack flowers to collect nectar and pollen from and had to travel for long distances to find them. This wasted time for honey production for the bees thus affecting production in the long run. However, Oduol *et al.* (2013) in his study found out that there are other agricultural activities like fruit farming which compliments beekeeping by providing nectar and pollen needed by the bees.

According to Carrol and Kinsella (2013), many farmers have opted for bio-fuel type of crops which do not support beekeeping. Insecticide use, herbicides and fungicides to control pests and diseases in crops poison the bees and reduces their life expectancy. This affects beekeeping to a large extent. The findings of this study are affirmed by Tesfaye *et al.* (2017) who found out in their study that some farmers have opted to planting fast crops which in

some cases do not support beekeeping. This because of their need for a quick source of money.

Test of Research Question Q₀₃

Objective three was translated into the following research question:

Q₀₃: Does the type of land tenure affect women’s participation in bee-keeping in Baringo South Sub- County?

The research question was tested using ordered logistic regression. Table 4.19 shows how land tenure influence women’s participation in bee-keeping.

Table 4.19

Ordered logistic regression for the influence of land tenure on women participation in bee-keeping

Extent of women participation in beekeeping	Coef.	Std. Err.	z	P>z	[95% Conf. Interval]	
Individual land ownership	1.207	0.521	2.32	0.020	0.186	2.228
Communal land ownership	0.597	0.735	0.810	0.416	-0.843	2.037
Lease land ownership	-0.075	0.402	-0.19	0.852	-0.862	0.713
No land ownership	-0.993	0.445	-2.23	0.026	-0.121	-1.865
/cut1	2.691	0.517			1.678	3.704
/cut2	4.176	0.614			2.973	5.379
/cut3	4.981	0.672			3.665	6.298
/cut4	5.497	0.731			4.065	6.929
/cut5	7.168	1.160			4.895	9.441

n = 128; Log likelihood = -113.47; LR chi2(4) = 28.65; Prob> chi2 = 0.000; Pseudo R2 = 0.211

The log likelihood for the fitted model of -113.47 and the log likelihood chi-squared value of 28.65 (p-value = 0.000) indicate that the parameters in the model are jointly significant at 5%. Pseudo R² of 0.211 confirms that land tenure was well attributed to the extent of women participation in beekeeping (land tenure account for 21.1% changes in the extent of women participation in beekeeping).

The coefficients for individual land ownership and no land ownership were significant at 5% level. However, the coefficients for communal land ownership and lease land ownership were

not significant at 5% level. The results in Table 19 show that the coefficient for individual land ownership (1.207) was positive and statistically significant at 5% level (p-value = 0.020). This implies that owning land on individual basis leads to greater women participation in beekeeping. The coefficient for lack of land ownership (-0.993) was negative and statistically significant at 5% level (p-value = 0.026). This implies that lack of land ownership reduces women participation in beekeeping.

These results agree with Shire *et al.* (2016) who learnt that in African set up, women are not allowed to own property including land. Because of that reason, women do not have the powers to make decisions on how to use the land. They cannot decide whether or not they should practice beekeeping or practice other forms of farming. They cannot decide on the number of bee hives to place in that piece of land since they are not the land owners.

These results are consistent with Ross (2009) who found that land tenure influence the size of land owned by an individual and by extension the extent of farming that can be practiced. The more the amount of land the greater the opportunity to practice bee farming. If the land is big enough, the farmer has the opportunity to choose the best site which is far from people's residents, an area where it is silent and has little disturbance and a place which is safe from predators. This is not usually possible if the land is too small and squeezed up. When the land is small, the farmer will be limited on the number of hives to be placed in that piece of land.

Abebe *et al.* (2008) noted that land tenure dictates if the land can be used purely for beekeeping or can be practiced with other farming methods. When the land is small, the farmer might be forced to practice several types of farming in the same land. A farmer with several pieces of lands, can decide to purely practice beekeeping on one piece of land as opposed to practicing several types of farming in the same land when with one small piece of land. Carrol and Kinsella (2013) found that land tenure also influences the type of crops grown in a farm. There are crops which are friendly to apiculture and others which are not. A farmer is only able to dictate the use of available land with respect to beekeeping if he has appropriate type of tenure. If the land is individually owned, a farmer can decide on her own on what to plant in it unlike if it is communally where people can have different opinions on what to put in the land.

Gender equity and equality has not yet been realized especially in access and control over land. From the research interaction in all women groups customary laws on inheritance have hindered realization of women influence on control and access over land. Land as a key factor of production which was highlighted to be dominated by men as key decision concerning production such as when to produce? Where to produce? What to produce? How much to produce? Are based on access and control over land resource. Women acknowledged the need to follow customary laws of inheritance in order to maintain family fabric, reduce court cases and reduce divorce cases emanating from wrangles on land. The fear of social outcast and court cases have led women to maintain status quo on issues of land inheritance thus the continuity of gender disparity on land control and access.

Kabarne (2010) observed that in most African communities, women's access and control over land is limited because land is usually passed to adult males. Additionally, Kachika *et al.* (2009) found that women do not possess inheritance rights in most African communities. Salethet *al.* (2003) noted that participation of women in bee keeping is hampered partly by the fact that land is usually transferred from a deceased man to his brother or nephew (not to women). This is in accordance with the decisions of the clan even in matrilineal clan.

Lachampelle (2008) found that most communities in Kenya have customary laws that prevent women from accessing and controlling land independently from their husbands and male relatives, a fact that significantly affect bee keeping. For women, their land rights are compromised even when female headed households are at an increase. This way, women decision making on beekeeping is skewed since they do not possess any right to control land as a resource. According to a study carried out by Food and Agricultural Organization (FAO) in (2016), most farmers have opted to use green houses in growing various crops. Green houses closes out the bees making it hard for them to access the flowering plants inside the green houses. Horticulture, floriculture and agronomy are mostly carried out in green houses in the modern world.

4.7 Influence of Gender Roles on Beekeeping

Respondents were asked to comment on how gender roles constrain them in their day to day activities as far as beekeeping was concerned. The results are shown in Table 4.20.

Table 4.20***Opinions on gender roles affecting beekeeping***

Gender roles	SA	A	U	D	SD	Total	Mean	Stdev
	31	66	2	21	8	128	3.711	1.185
Childrearing	(24.2)	(51.6)	(1.6)	(16.4)	(6.3)	(100)		
	29	42	5	41	11	128	3.289	1.352
Household chores	(22.7)	(32.8)	(3.9)	(32)	(8.6)	(100)		
Income generating activities	19	41	6	52	10	128	3.055	1.282
	(14.8)	(32)	(4.7)	(40.6)	(7.8)	(100)		
Provision of paid labour	16	35	9	60	8	128	2.930	1.224
	(12.5)	(27.3)	(7)	(46.9)	(6.3)	(100)		
Provision of unpaid labour	12	40	11	50	15	128	2.875	1.242
	(9.4)	(31.3)	(8.6)	(39.1)	(11.7)	(100)		
Community development roles	13	11	6	56	42	128	2.195	1.268
	(10.2)	(8.6)	(4.7)	(43.8)	(32.8)	(100)		

Key: SA - Strongly Agree, A – Agreed, U – Undecided, D – Disagree, SD - Strongly Disagree

From the study results, child rearing was perceived as the major constrain affecting women participation in beekeeping with a mean of (3.7). This could be attributed to the burden of bringing up children. Most women found it hard to leave their young children to practice any form of farming. After child-birth, they took care of their infants until they were grown enough to be left with house-helps or other older siblings. A respondent in an interview schedule reported that, “*Whenever she got a baby, she postpones beekeeping roles until her baby reached one year of age.*”

This meant that the lady involved had to delegate beekeeping roles every time she got a baby. This affected her production to a large extend. Kioko (2010) in his study found out that many women do not attend social gatherings because of too many roles that they have been assigned to them. Culture has assigned many roles to women and Raina *et al.* (2009) in their study found out that women are the gate-keepers of culture. Therefore, most women follow what culture dictates to them especially on issues to do with assignment of gender roles and taboos.

This study found out that household chores constrained most women in their day-to-day activities. Women have multiple roles of production, reproduction and community development roles. The many household chores were time consuming and repetitive. Women thus spent most of their time doing the many gender roles to the extent of leaving beekeeping aside.

From an interview schedule, a respondent reported that, *“responsibilities in beekeeping have been divided according to gender. For instance, the men have been given roles such as constructing and repairing bee hives, hoisting of the log hives, colony replacement, queen rearing and honey extraction. On the other hand, the women have been assigned roles such as provision of supplement feeds to the bees, pest management, grading and packaging, marketing and bee wax processing.”*

This is thus in agreement with the work of Qaiser *et al.*(2013) who found out that men in the olden days were assigned the roles like honey harvesting which was carried out at night. Qaiser *et al.* concluded that beekeeping was totally a gender-based activity. However, these roles are changing gradually and this study discovered that women in the present days are doing those roles which were assigned to men earlier. These include honey harvesting, hoisting of bee hives (box hives) as well as replacement of colonies. This can be attributed to trainings and capacity-building on beekeeping matters as well as improvement of technologies in the beekeeping sector.

Majority of the respondents (60%) in this study disagreed with the statement that income generating activities hindered their day-to-day activities. Most respondents outlined that income generating activities provided capital that could be used for beekeeping. Moreover, according to a number of women, bee management did not consume a lot of time. Once a bee hive has been hoisted, the number of activities needed to maintain it reduces.

Majority of the respondents (50%) did not consent to the statement that provision of paid labour constrained them in their day-to-day activities. Seven percent of the respondents were undecided. Paid labour could provide an extra capital that could be used for bee maintenance. Moreover, beekeeping was not time consuming and couldn't take most of women's time. They could still balance between beekeeping and providing for the paid labour. Majority of the respondents disagreed with the statement that provision of unpaid labour hindered their

day-to-day activities. Studies in the past researchers have found out that beekeeping was not a type of farming that was time consuming and could be carried out along with other roles comfortably. Majority of the respondents disapproved the statement that community development roles constrained them in their day-to-day activities.

According to Ahikiriza (2016), women with young children rarely take part in active beekeeping because those children need a lot of attention and care from their mothers. This is in agreement with the finding of this study. The researcher in this research found out that women in Baringo South Sub-County agreed to the same statement. They gave attention and support to their children until they were able to walk and talk which could be around three years of age. Women were noted to adopt different types of strategies in order to cope with the challenges of gender roles. Respondent's adoption of various coping mechanisms is summarized in Table 4.21.

Table 4.21

Coping strategies in dealing with the challenge of gender roles

Coping mechanisms	SA	A	U	D	SD	Total	Mean	Stdev
Hiring house-helps	28 (21.9)	74 (57.8)	3 (2.3)	19 (14.8)	4 (3.1)	128 (100)	3.805	1.043
Waiting until children grow up	6 (4.7)	37 (28.9)	12 (9.4)	59 (46.1)	14 (10.9)	128 (100)	2.703	1.139
Carrying children to work places	7 (5.5)	43 (33.6)	9 (7)	48 (37.5)	21 (16.4)	128 (100)	2.742	1.238
Leaving children with husbands	3 (2.3)	24 (18.8)	8 (6.3)	61 (47.7)	32 (25)	128 (100)	2.258	1.103
Leaving children with relatives	11 (8.6)	39 (30.5)	15 (11.7)	44 (34.4)	19 (14.8)	128 (100)	2.836	1.254

Key: SA - Strongly Agree, A – Agreed, U – Undecided, D – Disagree, SD - Strongly Disagree

From the study results, hiring of house-helps was the most popular strategy of dealing with the burden of gender roles with a mean of (3.8). This could be attributed to the relative advantage of venturing in beekeeping. The extra income generated was able to hire a labourer to assist in the domestic chores. The second major popular strategy was staying at home until

children matured in order to venture into beekeeping activities as a full-time employment. Most respondents in the interview schedule reported that, *“most of the female beekeepers in trying to balance the reproductive and productive roles have opted to hire house-helps to ease their work and also to ensure the safety of their children. Most women sell their honey in the evening when people are returning from jobs and that means that they will stay until nine at night. Children are supposed to be fed before sunset that imply that the women are supposed to leave their honey selling and go home. To solve this challenge, most women have employed house-helps to partly assist them carry out the nurturing roles.”*

Most of the respondents with a mean of (2.7) disagreed to the statement that waiting until children grew up was a coping mechanism on challenges against gender roles. Women are excellent on multi-tasking and can do their gender roles together with beekeeping.

Most respondents disagreed with a mean of (2.7) to the statement that carrying children to work places was a coping mechanism on challenges against gender roles. Children could not be taken to the work places because handling bees was a dangerous activity and could kill the children. Bee sting is poisonous and can easily kill. Bees tend to follow the smell of honey and since the women handled the honey during processing and packaging, they avoided taking children to their working places since the bees could access the area and cause harm to them. In an interview schedule, a respondent reported that, *“she could not take her baby to the selling area since it is cold in the evenings and the infant can easily contract pneumonia. She also needed to run to the customers when vehicles stopped and carrying a baby on the back was an additional cumbersome work.”*

Therefore, most women preferred leaving their children at home with the house-helps or with older children who could take care of them well.

Majority of the respondents with a mean of (2.3) disagreed to the statement that leaving children with husbands was a coping mechanism on challenges against gender roles. An interview schedule reported that, *“husbands were not born to take care of children. They don't know how well a baby should be handled. In the bible, a woman was given the role of nurturing and men to provide and not to take care of children. Moreover, I went for circumcision and I was taught that I should never leave my children to be taken cared y my husband.”*

Amongst the Kalenjins, men are not supposed to take care of children and it is purely a women’s role. Therefore, women desisted from leaving their young children with their husbands as they carried out bee management.

Majority of the respondents with a mean of (2.8) disagreed to the statement that leaving children with relatives was a coping mechanism on challenges against gender roles. Some relatives could not agree to take care of children because they were busy too with other activities. Women therefore preferred hiring house-helps and pay them instead of leaving the children with relatives.

Test of Research Question Q₀₄

Objective four was translated into the following research question:

Q₀₃: How do gender roles affect women’s participation in bee-keeping in Baringo South Sub-County?

The research question was tested using ordered logistic regression. Table 4.22 shows how gender role influence women’s participation in bee-keeping.

Table 4.22
Ordered logistic regression for the influence of gender roles on women participation in bee-keeping.

Extent of women participation in beekeeping	Coef.	Std. Err.	Z	P>z	[95% Interval]	Conf.
Gender roles	-0.592	0.255	-2.320	0.020	-1.092	-0.092
/cut1	-1.040	0.763			-2.536	0.457
/cut2	0.236	0.760			-1.254	1.726
/cut3	1.030	0.784			-0.507	2.566
/cut4	1.540	0.822			-0.071	3.152
/cut5	3.217	1.203			0.859	5.576

n = 128; Log likelihood = -125.01; LR chi2(1) = 5.60; Prob> chi2 = 0.018; Pseudo R2 = 0.264

The log likelihood for the fitted model of -125.01 and the log likelihood chi-squared value of 5.60 (p-value = 0.018) indicate that the two parameters in the model are jointly significant at 5%. Pseudo R² of 0.264 confirms that the extent of women participation in beekeeping was well attributed to gender roles (gender roles account for 26.4% changes in the extent of women participation in beekeeping).

The results in Table 22 show that the coefficient for gender roles (-0.592) was negative and statistically significant at 5% level (p-value = 0.020). This implies that greater load with gender roles reduces women participation in beekeeping.

These results are consistent with Kioko (2010) who found that men and women had opposing roles with men being seen as providers for the family and women being seen as caretakers of families and homes. These roles inevitably disadvantage female from not only their ability to participate in beekeeping, but even in other economic activities.

Pactkenya (2010) observed that in beekeeping, men and women play different roles and participate in different extents. This is partly because culture has made them to believe so. The roles that women have been assigned include cleaning of apiary, watering of the bees especially during dry seasons when water is scarce and honey processing which involved the extraction of honey from combs. Men on the other hand constructed bee hives, repaired them when they got spoiled, hung the hives, harvested the honey and sold the honey.

According to Shire *et al.* (2016), women do not take part in beekeeping because of lack of skills on bee farming, cultural constrains, prohibition by culture from climbing up trees among others. According to Mburu (2015), some women have not yet adopted new technologies well and are still using the traditional methods of beekeeping. The use of traditional methods results to production of little honey which lowers production.

Moser and Moser (2005) noted that gender roles as a major factor that influence participation in beekeeping. Women have the roles of production, reproduction and that of community development. These roles are usually time consuming, tiresome and repetitive. These roles take much of the women's time leaving no time for other activities like beekeeping. Women with younger children rarely take part in beekeeping because the nurturing role takes most of their time. The findings of this research concur with what Moser and Moser said the multiple

roles of women took most of their time since they were many, time consuming and repetitive in nature.

Ahikiriza (2016) also found that gender roles pose a negative influence on bee keeping. Because of the many role that women have, they cannot get time to attend trainings that will enable them learn more on improved technologies. They find it hard to attend social gatherings where in most cases act as platforms for passing information in the society. Therefore, the finding of this research is in agreement with researches carried out in the past.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This section presents summary of key study findings as well as conclusions and recommendations which are logically arranged in line with the objectives of the study. Some areas of further research have also been suggested.

5.2 Summary of Findings

The following were the salient findings of this study:

5.2.1 Demographic Characteristics of Respondents

Majority (38.3%) of the respondents were aged 31 - 40 years. Most (63.3%) of the farmers were married. The highest proportion of respondents were self-employed. All the respondents in this study had ventured in bee keeping. There existed other agricultural practices such as goat keeping, crop farming, dairy farming and fruit production. Majority of the respondents had 1 – 10 hives as represented by 67.2% of the total responses. The commonest types of hives in the study area were log hives (85.9%), langstroth (18.0 %) and KTBH hives (16.4 %). Majority of respondents (60.9%) were earning 5,000 and below from beekeeping.

5.2.2 Level of Training on Women Participation in Beekeeping

About 76.6% of the total respondents had less than tertiary level of education. About 59.4 % of the respondents were trained while 40.6% did not have any training on beekeeping. Majority of respondents (53.1%) had received training on honey processing. Other areas where the respondents had received training on areas that included establishment of apiary (32.0%), management of beekeeping (47.7%) and honey harvesting (31.3%).

The coefficients for tertiary (college) (-2.645) and University level of education (-2.794) were negative and significant at 5% level. This implies that possession of more specialized formal education attributed to non-participation in bee keeping. Having tertiary (college) and university level of education reduces the likelihood of women participation in beekeeping. This is because when one specializes in a different field other than beekeeping, more job opportunities in their career paths were realized thus reduces the possibility of them venturing in beekeeping since they have not specialized in it.

The coefficient for specific training on beekeeping and management of bees (1.532) was positive and statistically significant at 5% level. This implies that having specific training on beekeeping and management of bees increases women participation in beekeeping.

5.2.3 Cultural Norms and Stereotypes on Women Participation in Beekeeping

Majority of the respondents (82.8%) indicated that they had cultural beliefs and stereotypes that hindered them from practicing bee keeping. Most of the stereotypes revolved around beliefs that beekeeping was purely a male's role, no woman should own beehives because she would die, no woman should count the number of beehives, women should not climb up tree to hoist beehives, bee stings kill women only, a woman should not construct or destroy a beehive, else she die and a woman should not make any decisions concerning beekeeping.

Majority of the respondents (36.7%) fall in the scale between 2.1 and 3.0 (which is an indication of moderate believe in cultural stereotypes). An average respondent in this study had a rating of 3.631 on a 0 – 5 likert scale on believe in cultural stereotypes. Some of the coping strategies adopted in response to cultural stereotypes included attending trainings on beekeeping, benefiting from beekeeping, climatic conditions, investing less capital, producing seasonally and engagement in fewer gender roles. The coefficient for extent of believe in cultural stereotype was negative and statistically significant at 5% level, implying that greater believe in cultural stereotype reduces women participation in beekeeping.

5.2.4 Land Tenure on Women Participation in Beekeeping

Half of the respondents agreed that women could own land in their area. About 57.8% of the respondents owned land (42.2% of the respondents did not). Majority of the respondents (48.4%) held their land under communal ownership. About 39.1% of the respondents' land were individually owned. About 22.7% of respondents owned their land on lease. The coefficient for individual land ownership (1.207) was positive and statistically significant at 5% level (p-value = 0.020). This implies that owning land on individual basis leads to greater women participation in beekeeping. The coefficient for lack of land ownership (-0.993) was negative and statistically significant at 5% level (p-value = 0.026). This implies that lack of land ownership reduces women participation in beekeeping.

5.2.5 Gender Roles on Beekeeping

Majority of the respondents consented that gender roles such as childrearing, household chores, income generating activities, provision of labour (paid and unpaid) and community development roles, influenced female participation in bee keeping. As a result, different coping strategies have emerged in the study area. Such strategies included hiring of house-holds, waiting until children grow up, carrying children to work places as well as, leaving children with husbands and relatives. The coefficient for gender roles (-0.592) was negative and statistically significant at 5% level (p-value = 0.020). This implies that greater load with gender roles reduced women participation in beekeeping.

5.3 Conclusions

From the study results, the following conclusions have been drawn:

Possession of tertiary education is attributed to non-participation in bee keeping. Having tertiary (college) and university level of education reduces the likelihood of women participation in beekeeping. Having specific training on beekeeping and management of bees, increases women participation in beekeeping. Many women who have specialized in other fields other than beekeeping find employment that go in line with their specialization and do not practice beekeeping. Those who have training specifically on beekeeping practice it more.

The high burden on women through cultural stereotype that worked against them reduced their participation in beekeeping. Greater believe in cultural stereotype by women lowered their participation in beekeeping. Land tenure system has a significant influence on women participation in bee keeping. Owning of land on individual basis leads to greater women participation in beekeeping. Lack of land ownership reduces women participation in beekeeping. Gender roles had a significant influence on women participation in beekeeping. Women had huge gender roles that hampered their participation in beekeeping. The high burden of gender roles on women presented itself in forms such as childrearing, household chores, income generating activities, provision of labour (paid and unpaid) and community development roles, influence female participation in bee keeping.

5.4 Recommendations

In view of the findings and the conclusion drawn above, this study makes the following recommendations:

5.4.1 Training and Capacity-building

The trainers doing capacity-building on beekeeping matters should carry out the trainings at the times when most women are free and available. For example, during the afternoon hours when most of them are done with most gender roles, during weekends when older children are at home or during the holidays when schools have closed and children are at home to assist in carrying out some gender roles.

5.4.2 Forming Strategic Partnerships

Women engaged in beekeeping should endeavor to unite and seek strategic partnerships with the county government and other key stakeholders (NGOs, farmers' organizations, honey processors and academic institutions) in order to benefit from quality trainings at a cost-effective manner.

5.4.3 Demystifying Negative Cultural Stereotypes.

Social platforms in the study area should endeavor to reverse the prevailing negative cultural stereotypes that majority of the population believe in. Such stereotypes significantly reduce women participation in beekeeping. Mass campaigns can be mounted through the elders, social media, social groupings (women groups, farmers groups) and through the county government. Stakeholder who are interested in support intervention for beekeeping in the study area should ensure that cultural norms and stereotypes affecting women participation are put into consideration during implementation of interventions.

5.4.4 Upholding Legal Interventions.

County government should put up some legal interventions aimed at enabling more women to own land since this is a prerequisite for greater women participation in beekeeping. Furthermore, elimination of land ownership as a criterion for participating in beekeeping activities such as trainings can attract more women participants who do not commonly own land on individual and communal basis.

5.4.5 Adopting Modern Technologies

Gender roles should not be assigned according to biological and cultural stereotyping in order to create time for women to participate in bee keeping. Greater load with gender roles reduces women participation in beekeeping. Promotion of time saving technologies for household

chores (cleaning, washing, cooking, etc.) could go a long way in creating the much needed time necessary for women participation in beekeeping.

5.4.6 Provision of Markets

The government should ensure that there are ready markets for honey so that the women do not have to struggle to look for markets on their own. More factories should be established in order to ensure that no woman lacks a place to take the honey she harvest's from her bee hives. This will also encourage more women to venture into the practice.

5.4.7 Allocation of Funds for Beekeeping Activities

The county government of Baringo should set aside funds to support women who practice beekeeping. This will encourage more women to venture into the practice.

5.5 Suggestions for Further Research

The findings of this study would act as a base for more research on influence of selected socio-cultural factors on beekeeping among women in Baringo County in Kenya. This study was not exhaustive recommends further research on:

- i) The influence of government policies on women performance in beekeeping in the study area.
- ii) A similar study in other counties in Kenya with socio-cultural factors not similar to the study area.
- iii) An investigation of other possible factors apart Training, cultural stereotype, land tenure and gender roles that may influence women participation in bee keeping.

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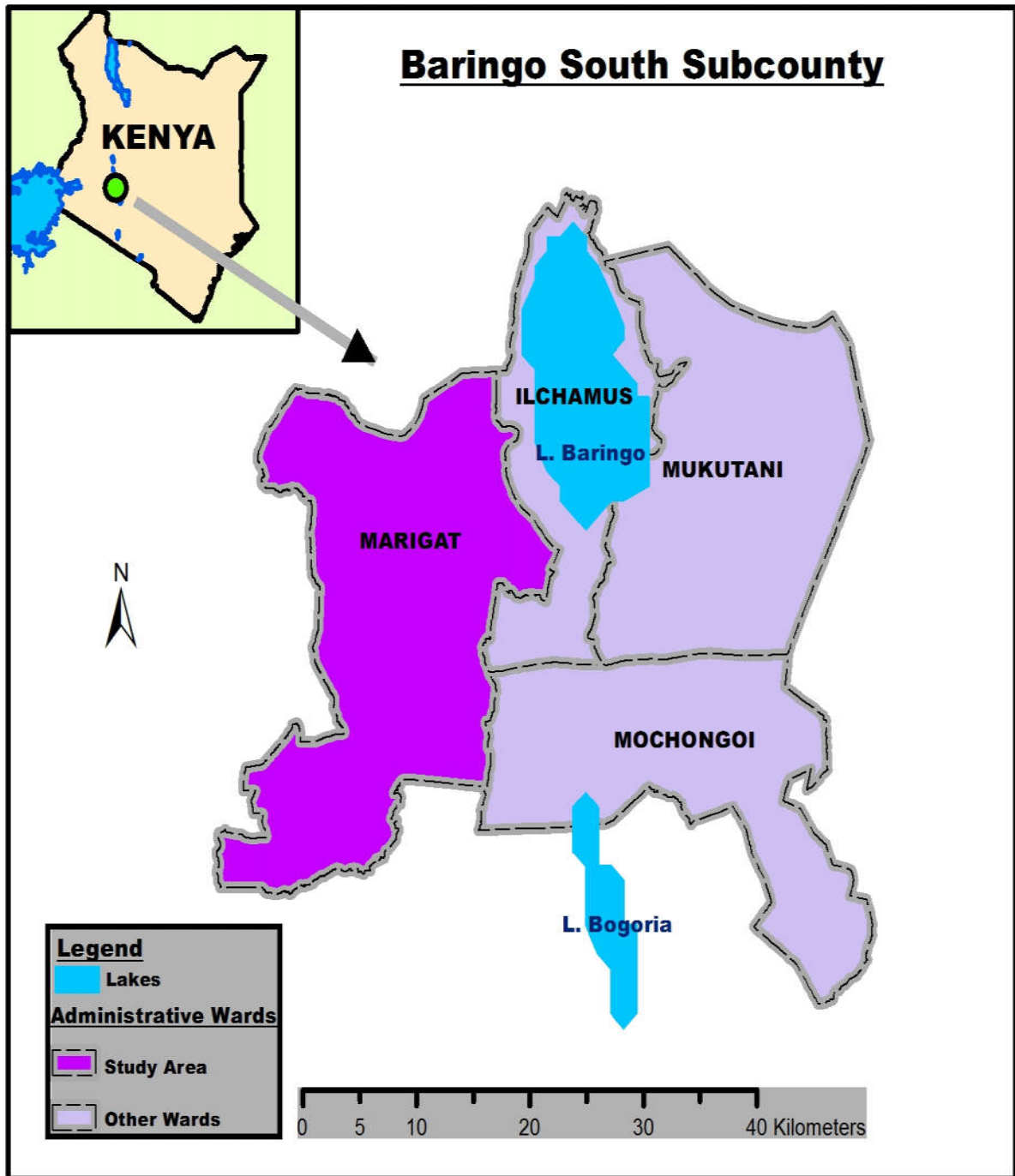
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Appendix A: Map of Baringo South Sub-County

MAP OF THE STUDY AREA



Source: Egerton University Geography Department

Appendix B: Questionnaire for the Women Respondents.

I am a master's student of Egerton University carrying out research on selected socio-cultural factors affecting women participation in Beekeeping in Baringo South Sub-County. I am doing a research in Baringo South Sub-County. Any volunteer information is highly welcomed and will be treated with high confidence.

Instructions

- Kindly do not write your name
- Tick where appropriate
- Please respond to all the questions

Section A. Background information

1. Which is your ward?

Marigat () Ilchamus () Makutani () Mochongoi ()

Others () please specify.....

2. Year of birth?

21-30 () 31-40 () 41-50 () 51-above ()

3. Marital status?

Married () single () divorced () widowed ()

4. Highest level of education?

Non-formal () primary () secondary () tertiary college () university ()

5. Current occupation?

Employed () informal () self-employed () Beekeeping ()

6. What agricultural practices do you venture in?

Dairy farming () Beekeeping () Goat rearing () Crop production

Fruit production ()

7. Number of Hives?

1-10 () 11-20 () 21-30 () 31-40 () 41-50 () 51 and above ()

8. Type of hive owned?

Log hive () KTBH hive () Langsthtoth hive () others () please specify

9. Average monthly income from Beekeeping?
 1-5000 () 5001-10000 () 10001-20000 () 20001-30000 () 30001-40000 () 40001-50000 () 50000 and above ()

SECTION B influence of training on beekeeping

10. Do you have any training on beekeeping and the management of bees?
 Yes () No ()

11. Which areas are you trained on?

- : Establishment of apiary ()
- : Management of beekeeping ()
- : Honey processing ()
- : Harvesting of honey ()
- : Honey processing ()
- : Honey marketing ()
- : None ()

12. Do you agree to the following statements concerning beekeeping trainings? (Where SA=Strongly Agree, A= Agree, U= Undecided, D=Disagree, SD=Strongly Disagree)

Statement	SA	A	U	D	SD
1. Beekeeping training is beneficial to women					
2. Beekeeping training is done regularly					
3. Beekeeping training is relevant in improving the practice					
4. Training improves the production					

13. Do you agree on the following statements on challenges that affect beekeeping?
 (Where SA=Strongly Agree, A=Agree, U=Undecided, D=Disagree, SD=Strongly Disagree)

Challenges on Trainings	SA	A	U	D	SD
1. Gender roles affects training					
2. complexity of beekeeping content affect learning on beekeeping					
3. The extension workers target men on beekeeping					
4. Timing of the training affect participation					
5. The relevance of the training affects participation					
6. Training services are not accessible to most farmers					
7. The training content is not written in local language					

SECTION C influence of cultural stereotypes on beekeeping

14. Are there cultural beliefs and stereotypes that hinder women from practicing beekeeping?

Yes () No ()

15. Do you agree of the following connotations as stated by many people in the society (where SD= Strongly Disagree, D=Disagree, U=Undecided, A=Agree, SA=Strongly Agree):

Stereotype	SA	A	U	D	SD
1. Beekeeping is purely a male's role					
2. No woman should own beehives because she will die					
3. No woman should count the number of beehives because all the bees will abscond					
4. Women should not climb up tree to hoist beehives since a calamity will be fold the entire community.					
5. Bee stings kill women only					
6. If a woman constructs or destroys a beehive, she will die.					
7. A woman should not make any decisions concerning beekeeping. Only men should make them.					

8. Do you agree on the following ways that women have used as copying mechanisms to cope with cultural stereotypes? (Where SA=Strongly Agree, A=Agree, U=Undecided, Disagree, SD=Strongly Disagree)

Copying mechanisms with cultural stereotypes	SA	A	U	D	SD
1. Attending trainings on beekeeping					
2. Benefits obtained from beekeeping					
3. Climatic conditions of the area					
4. Less capital investment					
5. Seasonality of production					
6. Few gender roles involved in production					

SECTION D influence of Land Tenure systems on beekeeping

9. Do women own land in your area?

Yes () No ()

10. Do you own any piece of land?

Yes () No ()

11. Under what category of land ownership do they mostly fall under?

- i. Individual ownership ()
- ii. Communal ownership ()
- iii. Lease ownership ()

12. How are the land ownership rights transferred to women?

- i. Customary laws ()
- ii. Legal procedures ()
- iii. Mutual agreement ()
- iv. Others () please specify (.....)

13. Do you agree on the following connotations on women's access to land? (Where SA=Strongly Agree, A=Agree, U=Undecided, D=Disagree, SD=Strongly Disagree)

Women's access to land	SA	A	U	D	SD
1.Land is a hindrance in beekeeping among women					
2. Poor utility of Land affects beekeeping					
3. Land fragmentation affects beekeeping					
4. The cropping systems in the land affects beekeeping					
5. Access to land can promote women's access to beekeeping					

SECTION E influence of gender roles on beekeeping

14. Do the following responsibilities hinder women's participation in beekeeping in any way? (where SD= Strongly Disagree, D=Disagree, U=Undecided, A=Agree, SA=Strongly Agree)

Gender Role	SA	A	U	D	SD
Reproductive Roles					
i. Child rearing					
ii. Households chores e.g. cleaning, cooking, washing clothes e.t.c.					
Productive Roles					
i. Income generating activities					
ii. Provision of paid labour (<i>kibarua</i>)					
iii. Provision of unpaid labour					
Community development work such as organization of social events like wedding ceremonies, circumcision or burials.					

15. How do women cope with the challenges on gender roles? (Where SA= Strongly Agree, A=Agree, U= Undecided, D=Disagree and SD=Strongly Disagree).

Copying mechanisms	SA	A	U	D	SD
1.Hiring house-helps					
2.Wait until children grow up					
3.Carry the children to work-places					
4. Leaving children with husbands.					
5.Leaving children with relatives					

Appendix C: An interview guide for the Key informants (Chairs of women group and Branch Manager of the NGO)

I am a masters student of Egerton University carrying out a research on Selected socio-cultural factors affecting women practicing beekeeping in Baringo South Sub-County. The information will be used in addressing the inequalities that hinder women from adopting beekeeping as a form of farming. Any volunteer information will be treated with high confidentiality

Instructions

- **Kindly do not write your name**
- **Please respond to the questions below**

1. Is beekeeping a common practice in this area?
2. Are many women practicing beekeeping in this area?
3. Are there any socio-cultural factors hindering women from practicing beekeeping? If yes, please specify
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4. Do you think training level influence the way women adopt beekeeping as a form of farming? Please explain.
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5. Have you ever heard of any trainings, seminars or capacity building programs that help in widening the people's knowledge on beekeeping in this area? If yes, who are they?
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6. How often are the trainings carried out?

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.....

7. Do women attend those trainings?

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.....

8. Who owns land in this area?

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9. Are women allowed to own land? If yes, what are the land rights ownership procedures available?

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10. Are there stereotypes that hinder women from practicing beekeeping? If yes, which ones are they?

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11. How are women in this area coping with the stereotypes as far as beekeeping is concerned?

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12. Do you think gender roles prevent women from participating in beekeeping? Which gender roles are these?

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13. What coping mechanisms have the women devised in order to balance between the gender roles they have and beekeeping?

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14. Are bee farmers having a source of market for their products?

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15. Apart from honey, are there other hive products processed from beekeeping?

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16. What do you recommend to the county government that will help in enhancing women's participation in beekeeping?

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

Include the following as appendices:

- i) Key Data Analysis Outputs
- ii) A snapshot of the abstract page of paper(s) published from the work

Appendix D: Research License from NACOSTI

 REPUBLIC OF KENYA	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
Ref No: 296392	Date of Issue: 19/September/2019
RESEARCH LICENSE	
	
<p>This is to Certify that Ms.. CAROLINE YATOR of Egerton University, has been licensed to conduct research in Baringo on the topic: Selected Socio-Cultural Factors Affecting Women Participation in Bee Keeping in Baringo South Sub-County, Baringo County. for the period ending : 19/September/2020.</p>	
License No: NACOSTI/P/19/1634	
296392 Applicant Identification Number	 Director General NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
	Verification QR Code 
<p>NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.</p>	

Appendix E: Ethical Clearance Approval from Egerton University

EGERTON

TEL: (051) 2217808
FAX: 051-2217942



UNIVERSITY

P. O. BOX 536
EGERTON

EGERTON UNIVERSITY RESEARCH ETHICS COMMITTEE

EU/RE/DVC/009

Approval No. EUREC/APP/091/2019

20th November, 2019

Caroline Jemase Yator
Institute of Gender and Development Studies,
Egerton University
0702208097; carojemase@gmail.com

Dear Caroline,

RE: ETHICAL CLEARANCE APPROVAL; Selected Socio-Cultural Factors Affecting Women Participation in Bee- Keeping in Baringo South Sub-County, Baringo County.

This is to inform you that *Egerton University Research Ethics Committee* has reviewed and approved your above research proposal. Your application approval number is *EUREC/APP/091/2019*. The approval period is *20th November, 2019 – 21st November, 2020*.

This approval is subject to compliance with the following requirements;

- i. Only approved documents including (informed consents, study instruments, MTA) will be used
- ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by *Egerton University Research Ethics Committee*.
- iii. Death and life threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to *Egerton University Research Ethics Committee* within 72 hours of notification
- iv. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to *Egerton University Research Ethics Committee* within 72 hours
- v. Clearance for export of biological specimens must be obtained from relevant institutions.
- vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- vii. Submission of an executive summary report within 90 days upon completion of the study to *Egerton University Research Ethics Committee*.

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) <https://www.nacosti.go.ke> and also obtain other clearances needed.

Yours sincerely

Handwritten signature of Prof. J. K. Kipkemboi in blue ink.

Prof. J. K. Kipkemboi,

CHAIRMAN, EGERTON UNIVERSITY RESEARCH ETHICS COMMITTEE



JKK/BK/BK

"Transforming Lives through Quality Education"

Appendix F: Research Authorization from the County Director's Office

REPUBLIC OF KENYA



**MINISTRY OF EDUCATION
STATE DEPARTMENT OF EARLY LEARNING & BASIC EDUCATION**

**OFFICE OF THE COUNTY DIRECTOR
(BARINGO COUNTY).**

Our Email: countyedubaringo@gmail.com
Tel / Fax: 053/21282

P.O. BOX 664
KABARNET

REF: CDE/BAR/RESEARCH.GEN/VOL.II /178

03/10/2019

Ms. Caroline Yator
NACOSTI/P/19/1634
Egerton University



RE: RESEARCH AUTHORIZATION

Reference is made to research authorization letter Ref. No. 701525 dated 19/09/2019 on the above subject.

This is to inform you that you have been authorized to carry out research on "**Selected Socio - Cultural Factors Affecting Women participation in Bee Keeping in Baringo South sub county, Baringo County, Kenya**" for a period ending **19/09/2020**.

The authorities concerned are therefore requested to give maximum support so that this research is completed within schedule.

I take this opportunity to wish you well during this research in our county.



f. Karati Moses N.
County Director of Education
Baringo County

CC

Sub County Director of Education
Baringo North

Appendix G: Permit from the Office of the President Baringo County



OFFICE OF THE PRESIDENT

Telephone. 053-21285
Fax. (053)-21285
E-Mail:
baringocountycommissioner@yahoo.com
baringocountycommissioner@gmail.com

**MINISTRY OF INTERIOR
AND CO-ORDINATION
OF
NATIONAL GOVERNMENT**

COUNTY COMMISSIONER'S OFFICE,
BARINGO COUNTY,
P.O. BOX 1 - 30400
KABARNET.

When replying please quote:

REF.NO: **ADM.18/1 VOL.II/126**

7TH OCTOBER, 2019

The Deputy County Commissioner
Marigat Sub County
P.O. Box 1
MARIGAT

RE: RESEARCH AUTHORIZATION

Reference is made to licence No.NACOSTI/P/19/1634 dated 19th September, 2019 from the Director General – NACOSTI.

This is to confirm that **Caroline Yator** of **Egerton University** has been authorized to carry out research on "**Selected Socio-Cultural factors affecting women participation in bee keeping in Baringo South Sub-County**", for the period ending **19th September, 2020.**

Please accord her the necessary support.


R. M. RATEMO
For: COUNTY COMMISSIONER
BARINGO COUNTY

