GENDERED PERSPECTIVE OF CULTURAL FACTORS THAT INFLUENCE CONSERVATION OF USEFUL TREE SPECIES IN IGEMBE SOUTH SUB-COUNTY, UPPER EASTERN REGION

CATHERINE NDEI

N69/80702/2012

A PROJECT REPORT SUBMITTED TO THE INSTITUTE OF ANTHROPOLOGY, GENDER AND AFRICAN STUDIES IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN GENDER AND DEVELOPMENT STUDIES OF THE UNIVERSITY OF NAIROBI

2014

DECLARATION

This project is my original work and has not been submitted for examination in any other University

Signature: …… Date……

Catherine Wanjiru Ndei

This project has been submitted with my approval as the University Supervisor.

Signature: ……. Date……

Dr. S. Bukachi

DEDICATION

This project paper is dedicated to my husband, Robert and my daughter Rene’e for their steadfast support and encouragement.

ACKNOWLEDGEMENTS

I would like to express my sincere thanks to Dr. Salome Bukachi for her support, guidance, as the lead supervisor. My gratitude also go to Professor Simiyu Wandiba for his critical comments.

I am grateful to Igembe –South Sub-County, Kenya Forest Service Officer, Agricultural Officers, Chiefs Kiegoi and Athiru Gaiti location for their help during data collection.

I owe my deepest gratitude to my husband Robert and my daughter Rene'e to whom I dedicate this research. Through their prayers, encouragement and endurance they made this achievement possible.

Finally to God be the glory.

TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

Gender and cultural beliefs and taboos play an important role in conservation of tree species on the farm. The socially ascribed gender roles in relation to tree planting activities and use of tree resources can have significant implications for tree planting. For instance although women provide labour in planting and managing trees, it is the men who decide on use and disposal of tree resources. Equally the presence of cultural beliefs and taboos associated with planting can have an impact on conservation of useful tree species on the farm as they inhibit conservation of certain tree species.

This study was carried out in Igembe Sub-County and was aimed at assessing cultural beliefs and taboos that influence conservation of useful tree species by men and women. The study had three objectives-: to examine the roles of men and women in conservation of useful trees; to establish the cultural beliefs and taboos that influence men and women's participation in agroforestry and to examine how these beliefs have influenced conservation of useful tree species by women and men.

A cross sectional descriptive research design was used targeting sixty respondents who included small holder farmers. Data were collected using survey method, key informant interviews, and focus group discussions. The gender roles framework was used to analyse gender division of labour in tree conservation.

The study showed that cultural beliefs and taboos have an influence on conservation of useful trees by men and women. Culturally, planting or cutting of certain tree species is prohibited and this has helped to conserve some of the endangered indigenous species. Although these cultural beliefs affect men and women, they are more restrictive to women when it comes to participation in conservation of trees. Women in most cases cannot take decisions on issues concerning tree cutting and selling in the community; male permission is usually sought.

The study recommends the need to sensitize community members on cultural barriers to conservation of trees by men and women so as to promote gender equity in agroforestry and to ensure that men and women benefit fully.

ABBREVIATIONS AND ACRONYMS

ASAL	Arid and Semi-Arid Lands District
FGDs	Focus Group Discussions
FAO	Food and Agricultural Organisation
ICRAF	International Centre for Research in Agroforestry
NPVs	Net Present Values
SPSS	Statistical Package for the Social Science

CHAPTER ONE

INTRODUCTION

1.1 Introduction

The importance of sustainably managing trees on farms cannot be underestimated as trees play an important role in the ecosystem and provide a range of products and services to rural and urban people. Trees on farms are also considered important in conservation of the biodiversity and in absorbing carbon dioxide in the battle to moderate global warming worldwide (World Agroforestry Centre, 2009). This also helps to reduce deforestation and forest degradation, provides rural livelihoods and habitats for species outside formally protected land, and helps to alleviate resource-use pressure on conservation areas (Kaonga, 2012).

As natural vegetation is cut to create room for agriculture and other types of development, the benefits that trees provide are best sustained by integrating trees into the agricultural system— a practice known as agroforestry (Tewari, 2008).Agroforestry is defined as a dynamic, ecologically based, natural resource management system that, through integration of trees on farms and in the agricultural landscape, diversifies and sustains production for increased social, economic and environmental benefits for land users at all levels (Kaonga,2012, p.129).Smallholders' agroforests are valuable for conserving trees. Trees planted by farmers in agricultural landscapes are considered reservoirs of biodiversity. They support conservation *in situ* by providing an alternative source of products to reduce extraction from forest.

Farmers have for a long time included trees as part of their agricultural landscapes (Mackneely and Schroth, 2005).It is estimated that about 1.2 billion people practise some form of agroforestry worldwide and that more than half a billion people, especially smallholders, live in agricultural landscapes that have at least 10% tree cover (Dawson et al., 2011, p. 11).This system seeks to diversify and sustain production for increased social, economic and environmental benefits for farmers (Roshetko et al., 2006). A wide range of trees grown on the farm are multipurpose and provide a range of benefits including fertilizer trees for land regeneration, soil health and food security; fruit trees for nutrition; provide animal fodder; timber, trees for shelter and fuel wood; fruits and medicinal plants among others. In Kenya, for example, it has been found that people plant trees for fruit, to provide shade or ornament, to create windbreaks, or to mark out boundaries (FAO, 2013).

The gender factor with regard to tree growing is concerned with the roles that male and female family members play in tree planting, tending and harvesting. As Tengnas (1994) points out, there are differences between societies when it comes to responsibilities, user rights, division of labour, and decision making between men and women. These differences are in most cases governed by socio-cultural factors which members of the society conform to. Traditionally, women play a lesser role than men in the decision making process that affect and control their own lives and those of their homesteads and entitlements. Gender division of labor is itself rooted in religious and other cultural belief systems in which concepts of masculinity and femininity, and norms about behavior that is appropriate for each sex, are intrinsic. There are “gendered species” or

“women’s crops” and “men’s crops” that are commonly associated with each sex’s obligations to provide certain subsistence products (Howard and Nabanoga, 2007).Particular plant products such as timber, fuel wood, fruit, fodder, and craft materials that are associated with a specific sex, influences rights to trees.

The interest in women stems from the critical role they play in conservation of useful trees on the farm. For example, in the smallholder dairy farms of Central Kenya, it has been reported that women provide most of the labour for this type of farming (Kiptot and Franze 2011).The crucial role that women play is often obscured due to cultural beliefs and taboos among other factors which have implications on conservation of tree species. Many African societies for example have taboos that prohibit women from undertaking certain activities, which may limit their participation in developmental interventions such as agroforestry (Kiptot and Franze, 2011). Prevailing myths about the roles and status of women also undermine women’s empowerment especially where men are seen as users of and responsible for trees (Ahlawat and Hasumati, 2009). Such division of labour may have negative effects on women which include low status and low agricultural productivity including agroforestry.

In this study, the cultural beliefs and taboos that influence conservation of trees through agroforestry by women were assessed. The study focused on small scale holder farmers in the Central Kenya highlands, Meru County which has a unique traditional agroforestry system that has been used by the local community to meet diverse needs and protect a fragile environment caused by the sloppy terrain and high population density. There is

evidence that the local community has practiced agroforestry over generations and that the survival of the community has depended on diversification of agricultural production and wide choice of foodstuffs consumed in the area (Kitalyi et al., 2013).

1.2 Statement of the problem

The gender gap in agricultural productivity which includes agroforestry is a major hindrance to agricultural development and broader growth (World Bank, 2014).Women remain disadvantaged in the agricultural sector due to cultural, socio-economic and sociological factors (Kiptot and Franzel, 2011).Agroforestry can offer great benefits to both men and women. However, women's participation is hampered by various factors which include customs and taboos such as ritual prohibitions against planting or using certain trees, where trees may be planted and limitations on who may plant cut or sell trees. These beliefs are powerful determinants of people's actions, and often hold more local influence than existing rules and formal legislation put in place by national governments (Nair and Garrily, 2012).

Studies show that ownership of trees is often differentiated along gender lines with men having authority over high value tree products while women are inclined to tree species that meet their subsistence needs including fodder, fuel wood and those that provide food (FAO, 2013). According to Kanji et al., (2012), tree felling is mostly done by men in most African cultures. In western Kenya and among the Kamba community, tree planting activities are dominated by men and this has been sustained through cultural taboos

which include the belief that if a woman plants trees she would become barren or her husband would die (Kiptot and Franzel, 2011).

Furthermore, if a woman plants a tree, this could be interpreted as a challenge to the husband's supremacy in the household as well as seeking to claim equality in the home which could result in divorce. During house construction wood from a tree planted by a woman could not be used. Since one of the key uses of trees is for construction purposes, women were prohibited from planting trees so as to rule out the possibility of wood from such trees being used for the construction of a house (Mugure and Oino, 2013, p. 443).

Gender inequality is a constraint to the sustainable use and management of agroforestry system. Bankole (2012) reported that in some parts of Kenya for example among the Luhya community, women are prevented from planting trees as this was considered a curse (Bankole et al., 2012).

There has been emphasis on the critical role gender plays in development since the 1995 world conference on women held in Beijing. Addressing barriers that hold back the productivity of female farmers could both enhance gender equality and bring about economic growth. A lot has been documented on gender issues in agricultural production. However, very little is understood about role of gender in use and conservation of useful trees among small holder farmers (Kiptot and Franzel, 2011). This study therefore sought answers to the following research questions:

a) What are the roles of men and women in conservation of useful trees in Igembe Sub-County?

b) What are the cultural beliefs and taboos that influence conservation of useful tree species by men and women?
c) How have these beliefs and taboos influenced conservation of useful tree species by women and men

1.3 Objectives of the Study

1.3.1 General Objective

To assess cultural beliefs and taboos that influence conservation of useful tree species by men and women in Igembe Sub-County.

1.3.2 Specific Objectives

The specific objectives of the study were:

a) To examine the roles of men and women in conservation of useful trees in Igembe Sub-County.
b) To establish the cultural beliefs and taboos that influence men and women's participation in agroforestry.
c) To examine how these beliefs have influenced conservation of useful tree species by women and men.

1.4 Assumptions of the study

a) Men and women play different roles in conservation of useful tree species.
b) Cultural beliefs and taboos influence men and women's participation in agroforestry

c) Cultural beliefs and taboos influence conservation of useful tree species by women

1.5 Justification of the study

Considering that gender-based inequality can have implications for the design and implementation of development interventions, the study has generated data to improve information base for decision making by policy makers and programme implementers especially at the county level for successful planning in the agroforestry sector.

In order to foster gender equality which is a key government development agenda in the Vision 2030 and in the Constitution, understanding which aspects of gender equality need to be addressed is important for realization of development goals. This study has provided insights into cultural factors that natural resource managers and conservationists may consider when initiating tree conservation projects at the community level. To the academic world, the research has contributed to the knowledge base on gender and agroforestry.

1.6 Scope and Limitations of the study

The study was conducted in Kiegoi and Athiru Gaiti locations, Igembe South Sub-County, Eastern Kenya. Fifty smallholder farmers participated in the study. The study focused on gender division of labour in conservation of useful tree species and cultural factors that influence the gender differences in division of labour in conservation of useful tree species in the Sub-County. The study also looked at demographic profile of the study population including age, education, and occupation. A mixed-method design

that combined both quantitative and qualitative methods of data collection was used. Since the sample size used in the study is small, it may not be representative of the community in Igembe South Sub-County hence the findings cannot be generalized to the general population. The study will however provide data that can make contribution to the knowledge in gender and agroforestry but for more conclusive results a more detailed study should be conducted.

1.7 Definition of key terms

Access: defined as opportunity to use a resource

Adoption: The word "adopt" in this study means "accept".

Agroforestry: Agroforestry is defined as a land-use system where woody perennials (trees, shrubs, palms, bamboos) are deliberately used on the same land management unit as agricultural crops and/or animals, either in some form of spatial arrangement or temporal sequence. In agroforestry systems there are both ecological and economical interactions between the different components.

Conservation: means the protection, maintenance, rehabilitation, restoration and enhancement of the environment for sustainable use.

Control: power to decide how a resource is used and who has access to it

Culture: the distinctive patterns of ideas, beliefs, and norms which characterize the way of life and relations of a society or group within a society.

Cultural beliefs: are norms, values, standards, and expectations a culture has generated for its participants.

Gender: refers to the socially given attributes, roles, activities, responsibilities connected to being a being a female or male.

Gender equality: denotes women having the same opportunities in life as men, including the ability to participate in the public sphere.

Gender roles: a set of prescriptions for action and behavior allocated to women and men respectively, and inculcated and maintained as described under 'Gender Contract'.

Participation: refers to men and women involvement in tree planting, tending, harvesting, selling and decision making on use of resources.

Taboos: unwritten social rules that regulate human behavior.

Women empowerment: 'bottom-up' process of transforming gender power relations, through individuals or groups developing awareness of women's subordination and building their capacity to challenge it.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature related to conservation of trees by men and women. The chapter is divided into four main sections: overview of agroforestry, useful tree species in the homestead, tree planting and gender, and customs and taboos that prohibit men and women from undertaking certain activities related to tree conservation. The theoretical framework that guided the study is also discussed.

2.2 Overview of Agroforestry

The integration of trees in farming systems commonly known as agroforestry is widely practiced on all continents. A recent study of tree cover in agricultural land by Zomer et al. (2009) estimates that 48 percent of global agricultural land is under at more than 10 percent tree cover. Using a 10 percent tree cover as threshold, agroforestry is relatively most important in Central America, and Southeast Asia, but also occupies a large amount of land area in Africa. Agroforestry systems can be found on the East African landscapes spreading in most parts of the highlands of Kenya, Uganda, Tanzania, Rwanda and Burundi and according to available evidence these systems contribute tremendously towards the mainstream national economies (Kitaly et al., 2009). The so called agro-forestry parkland which refers to scattered trees in crop land is the most widely practiced farming system in Africa.

Various countries have embarked on ambitious programmes to increase tree cover outside of forests. China and India have embarked on (Grain for Green and Greening India respectively), including some attention to smallholder agroforestry. According to FAO (2003), tree cover on the farm in African is increasing while forest cover is decreasing. In Kenya, the Government in 2009 enacted new Farm Forestry rules which require 10 percent of all farms to be covered with trees. The Government response was in recognition of deforestation due to demand for agricultural land area, and the high motivation of farmers to plant trees (Place et al., 2012).

2.3 Useful Tree Species in the Homestead

Trees have played a variety of essential roles in Kenya. People plant trees for fruit, to provide shade, to create windbreaks, or to mark out boundaries, protecting crops from wind damage and the soil from erosion. Trees provide shade for people and animals in hot climates, and also serve as meeting point for family and community gatherings and activities. There are many places where trees are grown and protected for their shade and beauty; sometimes they are used for religious purposes hence they are viewed and treated as sacred.

Many attempts to promote agroforestry worldwide have been met with poor rates of adoption. According to the studies done by several scholars, there is higher net present values (NPVs) for agroforestry systems when compared to monoculture systems, yet farmers in developing countries show low rates of adoption (Mugure and Oino, 2013).

Cultural beliefs influence agroforestry adoption. For instance, ritual and taboo prohibitions against planting or using certain tree products are powerful determinants of people's actions, and often hold more local influence than rules and formal legislation set by national government (Kiptot and Franzel, 2011). According to Chavangi (1994), tree planting activities in western Kenya are dominated by men and it has been effectively sustained through cultural practices. As such women are denied ownership of trees due to this practice. To ensure that this vital customary requirement is sustained, certain reasons are advanced as to why women are not allowed to plant trees (Oloo, 2013).

Such reasons may scare women from active participation in tree planting activities and this helps to sustain male dominance. The reasons advanced in western Kenya to inhibit women from planting trees according to Kiptot and Franzel (2011) include beliefs such as if a woman plants a tree, she could become barren; if a woman plants a tree, her husband could die; if a woman plants a tree, the action is viewed as direct challenge to the husband's supremacy in the household. It is seen as seeking to claim equality in the home and such an action could result in divorce; and during the construction of a house, wood from a tree planted by a woman could not be used

2.4 Tree Planting and Gender

Gender is important in all spheres of development. As such gender differentiated rights and responsibilities in tree planting are an important determinant of the adoption of agroforestry technologies. Gender inequality is a constraint to the sustainable use and

management of agroforestry. For instance, Bankole et al (2012) reported that in some parts of Kenya, among the Luhya community, women are prevented from planting trees as this was considered a curse (Bankole, et al., 2012).Even as women continue to be key players in the agricultural sector of most developing countries, the men have reportedly continued to dominate farm decision making, even in areas where women are the largest providers of farm labour (Enete and Amusa, 2012). The challenges that women face are due to gendered social environment that is in favour of men.

According to Food and Agricultural Organisation (2011), in Rwanda women have the primary responsibility for food production but custom does not allow them to plant trees. An exception is made for fruit and medicinal trees, both of which increase household food security and well-being. By considering that fruit trees are food crops instead of trees, women have been able to circumvent the traditional ban on tree planting. Several women explained that they could also sell fruits on the market in order to buy foods they did not produce in sufficient quantity (particularly beans) and household necessities such as soap, cooking oil and salt.

Kiptot and Franzel (2011) indicate that women are disadvantaged when it comes to decision making on tree harvesting as they have to obtain permission from the men. Women only have autonomy to collect twigs and branches for fuel.

Changes in tree cover and loss of community access to forests can have a disproportionately adverse impact on women, with indirect impacts on households and consequently on the livelihoods of five to ten times as many people. Gender equity in the

forestry and agroforestry sector can contribute to the achievement of broader social and economic goals, including the Millennium Development Goals.

A study on community participation in wildlife conservation around Ol DonyoSabuk National Park Machakos District Kenya, by Lelo (1994) found out that women were more crucial stakeholders in environmental management and conservation than men. These studies clearly show that women cannot be ignored in the environmental conservation activities and if put-on forefront, women achieve more than men.

Tree planting has traditionally been dominated by men. In agricultural production and management of trees, men and women usually have different responsibilities. Men are involved with tree planting for commercial purposes while women take care of trees around the compound to provide food both for human and animals. Traditionally, women have a lesser role than men in the decision making process that affect and control their own lives and those of their homesteads and entitlements including the right to plant trees (Oloo, 2013).Women's rights in Africa as far as trees are concerned are mostly confined to by-products of men's trees. These byproducts are considered secondary with no significant economic importance. But the moment the 'byproducts' become valuable they are usually taken over by men. According to Rocheleau and Edmunds (1997), wives among the Luo community of western Kenya have rights of collection and use of fruits, but are restricted from harvesting fuel wood of high value timber trees (Kiptot and Franze, 2011).

This is also common among the Luhya community of western Kenya who are neighbours to the Luo (Bradley, 1991). Among the Akamba community of eastern Kenya, Rocheleau and Edmunds (1997) report that tree planting and felling have been primarily a male's domain, while women have enjoyed use and access rights to fodder, fuel wood, fiber, fruits and mulch. Tree products such as charcoal, logs, timber, large branches and poles are considered a male domain (Nair and Garrity, 2012). In addition, among the Ibo of southeastern Nigeria, Nwonwu (1996) reports that it is regarded as an abomination if women climb certain types of trees such as the oil palm, coconut palm or raffia palm. In Western Kenya, wood from a tree planted by a woman could not be used for house construction. It follows therefore that as one of the major uses of trees is for construction purposes, women were prohibited from planting trees so as to rule out the possibility of wood from such trees being used for the construction of a house (Kiptot and Franzel, 2011).

2.5 Customs and Taboos

Cultural beliefs, superstitions and taboos are found in perpetually all cultures throughout the world. This class of informal institutions defines the human behaviour and also guides people's conduct towards the exploitation of the natural resources (Negi, 2010). Taboos represent unwritten social rules that regulate human behavior (Colding and Folke, 1997). African societies have taboos that prohibit women from undertaking certain activities, which may limit their participation in developmental interventions such as agroforestry (Kiptot and Franze, 2011).

Traditional beliefs are also found to be a factor in the farmers' adoption of agroforestry technologies. Among some communities in Kenya, women cannot plant trees because this may imply ownership of land. Trees belong to men in some communities, irrespective of who plants them and women have to obtain permission to use them. Among the Meru community, tree management and harvesting decisions are gender biased. Men are the ones who determine tree sales for both timber and firewood. Women are only allowed to sell trees if there are urgent problems like illness. Continuous pruning by women for firewood is allowed (Carsan and Holding, 2006).

There are distinct men and women tree species in Western Kenya (Kerkhof, 1992). For example the traditional Fig trees are only planted by men and women are not even allowed to cut branches from such trees to avoid the risk of becoming barren. Certain tree species are associated with bad omen and are not allowed to be planted at all by community members however beneficial they may be. It was also believed that tree planting decisions in many communities are the domain of male heads of household. These traditional beliefs and taboos though not beneficial to farmers hold the key to conservation of natural resources. In some communities in Kenya, such as the Kikuyu and among the Luo of South Nyanza, people placed curses on trees so as to protect them (Castro, 1991). Among the Luo of South Nyanza, there were traditional taboos about cutting or planting of certain tree species.

Boserup, (1970),further states that despite the crucial role of women in the development process development projects do not consider the effect they have on women or of the role of women in their implementation. A study of 43 World Bank forestry projects, for instance, found that only eight made specific reference to women and agroforestry projects were no exception (Formann and Rocheleau, 1985).

Women are increasingly assuming leadership roles and decision-making in the absence of men in many households. In western Kenya for example, more than half of the households are headed by women (Kiptot and Frazel, 2011). Under such conditions agroforestry can give women more control over a productive resource.

This study took the view that agroforestry has the potential to offer great benefits to both men and women. The system is especially ideal for women who may not be able to adopt expensive technologies that are out of reach due to financial constraints. However, their participation is hampered by various factors which include customs and taboos.

According to literature, there are factors that shape gender roles in agroforestry. These factors include cultural beliefs, taboos that result in gendered division of labour and differences in access and control over resources. However there is research gap in the role cultural beliefs and taboos play in adoption of agroforestry by women and men (Kiptot and Frazel, 2011).

It is against this backdrop that this study seeks to explore factors that affect tree conservation with special emphasis on cultural beliefs and taboos that hinder women from participating in agroforestry for environment and livelihood benefits.

2.6 Theoretical Framework

2.6.1 The Gender Roles Framework

The study was guided by the Gender Roles Framework also referred to as Gender Analysis Framework that examines differences in men's and women's lives especially those that lead to inequality. It is also concerned with underlying causes of these inequalities. It provides information on the gender division of labour and makes a distinction between access and control over resources. The framework was developed in 1985 by researchers at Harvard Institute for International Development to help planners design efficient projects (Oxfam, 1999).

The framework has four tools. The first tool is the activity profile which identifies what men and women do and answers the question "who does what? Secondly, the Access and Control Profile tool focuses on gendered distribution of resources. It indicates who has access to resources, who has control of use and benefits of these resources. The person who has control over a resource is able to decide on its use. The third tool helps to analyse factors that influence the differences in division of labour or the gender patterns of activity and access and control over resources. These factors include those that shape gender relations for example cultural factors.

The fourth tool provides a checklist for program cycle analysis. Consideration is given to gender-sensitive project planning, design, implementation, monitoring, and evaluation.

2.6.2 Relevance of theory to this study

Gender Roles Framework was useful for mapping and identifying the gendered division of work as well as access and control over resources in Igembe Sub-County. It assisted in identifying gender differences in trees conservation and how these differences affect tree resource conservation and use.

The approach viewed decisions about resource (in this case referring to useful trees) conservation and use as behaviors that are determined by prevailing cultural beliefs and taboos. It also recognized that women's and men's roles and responsibilities affect how they use and manage resources. The framework provided a basis for analysis of differences between men and women and provided insights into how socially constructed roles and responsibilities shape the myriad decisions around agricultural production including tree conservation.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section explains the methodology used in the study including the research site, research design, study population, sample population and sampling procedure and data collection methods.

3.2 Research Site

The study was conducted in Igembe South (Map 3.1) which is an administrative sub-county of Meru County. It is also a parliamentary constituency. It borders Igembe south west to the west, Igembe south east to the north, and Meru National Park to the east which covers an estimated area of 833km^2 with a population of 775,982 persons (Lembara and Mathooko, 2013).Meru County has varied ecological zones ranging from upper highlands, lower highlands, upper midlands and lower midlands which has greatly influenced the major economic activities (Meru County Government, 2013).

Igembe South, Igembe North, Tigania East, and Tigania East sub-counties collectively form part of the larger Meru County in Eastern Region. It is classified as an Arid and Semi-Arid Lands District (ASAL) as 65 per cent of its total land area exhibits climatic conditions similar to those found in ASAL areas. Rainfall pattern is bimodal with long rains season expected from mid-March to May and short rains from mid-October to late December. The latter is the most reliable season and is commonly referred to as the

'Long rains'. Rainfall amounts range from 380mm p.a. in the low lying areas towards the Arid Isiolo district to 2500mm p.a. in the higher areas. Altitude ranges from 600 meters to 2,145 meters above sea level (Lembara and Mathooko, 2013)Igembe South constituency is found in the upper highlands zones. It consists of the following locations: Maua, Kithetu, Antobochiu, Luluma, Kiegoi, Kanthiari, Giika, Athi, Akachiu,Nduguto,Kanuni, Kiguru, Kabuline, AthiruGaiti, Kindanu, Kirimampio.

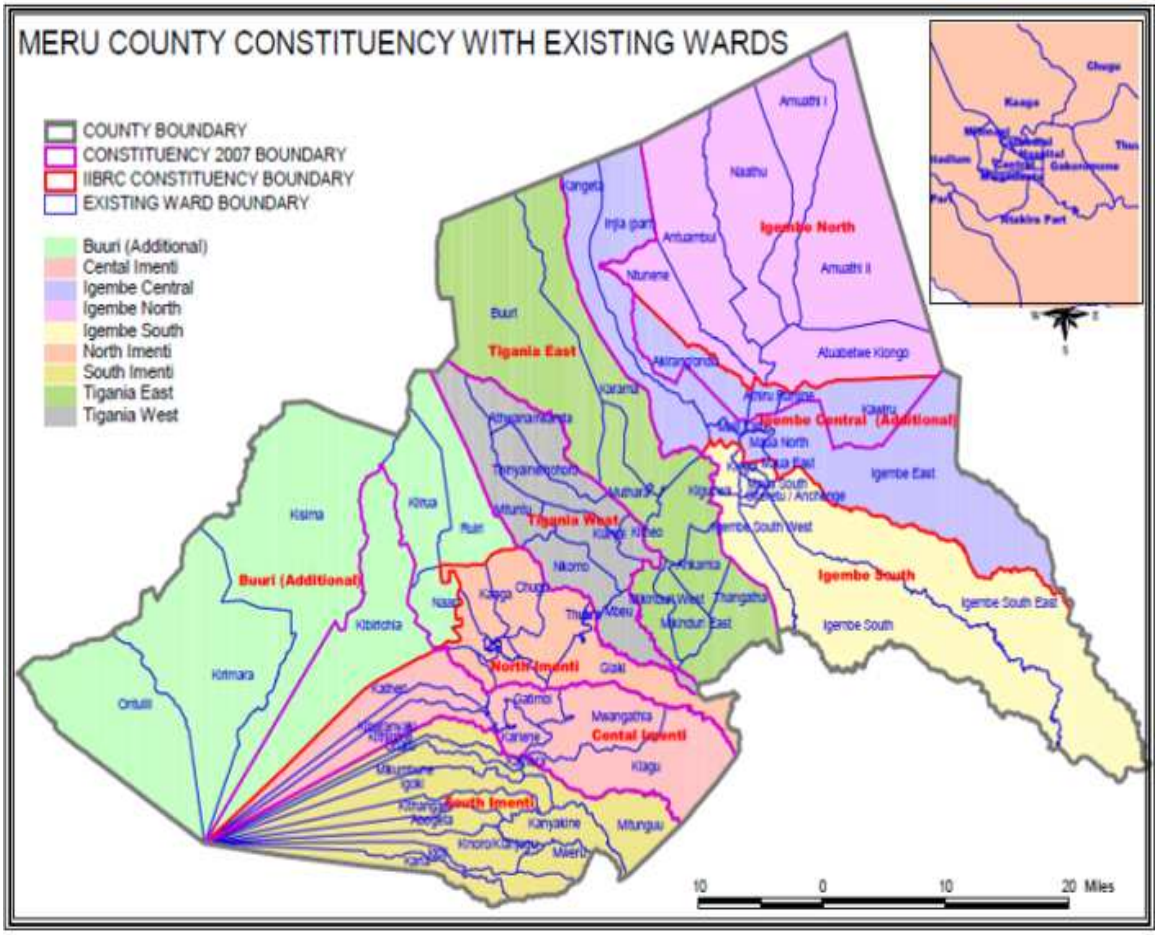

Figure 3.1: Meru County Constituencies

Source: Retrieved from http://meru.go.ke/

3.2.1 Economy

The main economic activity in the sub-county is agriculture. The estimated average annual rainfall ranges between 1800 mm (in Kiegoi location) and 2000 mm in Athiru Gaiti.

The sub-county has a strong tradition of agroforestry with planting and retention of a variety of multipurpose trees on farms. There is intense cultivation of khat trees (Catha edulis) or *miraa* as a major economic activity. Tea and coffee are also grown as a cash crop especially in upper zones. Other trees grown in the area include mangoes, avocado, and papaya. Subsistence mixed farming is mainly practiced where by several crops are grown both for domestic and commercial purposes. These include maize, beans, pigeon peas, green grams, millet bananas, cotton and sorghum. Animals kept include Zebu cows (local breed), dairy goats, and cows. Major economic activities revolve around tea, and *miraa* farming (Gichere et al., 2008).

There is a folk classification of trees in the study area with trees classified based on their use, agricultural importance, humoral attributes, habitat, and size (Gichere et al., 2008). Trees are used for different purposes There are boundary plants, trees of God which are used as prayer trees such as the fig tree. There are ritual trees which are used for cleansing and oath administration. There are trees that provide herbal medicine and animal fodder. Others include trees used for building houses. In addition, there are trees considered to thrive well in areas inhabited by people and can be found on the farm, around the homestead and pathways.

3.3 Research Design

The study was carried out using a cross sectional descriptive research design. Both qualitative and quantitative data collection methods were used. A survey design was used to determine the roles men and women play in conservation of useful tree species and the cultural factors that influence conservation of useful tree species. The survey targeted small scale farmers both male and female and was house-hold based. Qualitative data collection was by way of key informant interviews and focus group discussions. Quantitative data was collected using questionnaires and was analysed using descriptive statistics such as frequency. Data was tabulated and presented as charts and percentages. Qualitative data was first transcribed and then analysed by identifying emerging patterns and themes and organising the data according to themes identified. Appropriate verbatim quotes have been used to illustrate participants' responses.

3.4 Study Population and Unit of Analysis

The study population consisted of all smallholder farmers practicing agroforestry in Igembe Sub-County. The unit of analysis was individual small holder farmer.

3.5 Sample Population and Sampling procedure

The sample population consisted of sixty smallholder farmers practicing agroforestry. Simple random sampling method was used to select the respondents. Each location had a sample of thirty respondents. The simple random sampling method involved drawing a comprehensive list of smallholder farmers in each location with the help of chiefs. To get a sample of thirty small holder farmers for each location the lottery technique was used

where all units in the list were numbered and written on slips. These slips were then mixed up and a number picked at random until the desired sample was achieved.

3.6 Data Collection Methods

3.6.1 Survey

A standardized questionnaire was used to collect quantifiable information from the sample**.** The respondents provided information on agroforestry practices, cultural beliefs and taboos, gender roles regarding tree planting and control over resources. This data was collected using face to face interviews by trained research assistants conversant with dialects in the area. Village elders were engaged in respective locations to assist with identification of the households. Sixty households were targeted for the survey. At least fifty cases is recommended in the smallest subgroup to be studied if one wants to obtain moderately reliable percentages (Fisher et al., 1991).

3.6.2 Key informant interviews

Ten key informants were purposively selected and interviewed using face to face open ended key informant interviews. They included two chiefs, two agricultural extension officers, a forest officer, four farmers (Appendix C). These had firsthand knowledge about agroforestry practices and experience in agricultural extension work. The study sought their knowledge of types of agroforestry trees grown in the area, their major uses and cultural beliefs that influence gender division of labour with regard to tree planting.

3.6.3 Focus Group Discussions (FGDs)

Four focus group discussions were conducted; two with organised women groups and two with Njuri Ncheke elders in the two locations using a focus group aid (Appendix B). Selection of participants for focus groups was by purposive sampling. The total sample of the focus group discussions participants was thirty two. Each focus group included eight individuals. The discussions sought to understand types of useful tree species grown, cultural beliefs and taboos that influence tree planting by men and women, roles of men and women in tree planting, tending, harvesting.

3.7 Data processing and analysis

The qualitative data collected through focus group discussions and key informants was qualitatively analysed using thematic and content analysis. For quantitative data, questionnaires were coded accurately and coded responses were analysed using the Statistical Package for the Social Science (SPSS) version 20.0 software.

3.8 Ethical considerations

Ethical considerations were applied during all spheres of research process. Informed consent was obtained before any data was collected. An informed consent form was used to explain the nature of the study and seek the agreement of the respondent to be interviewed. Relevant gatekeepers in the community including the chiefs, elders were contacted before the commencement of the survey. Permission to have photos taken was sought, and confidentiality of all information was ensured during the research process.

No names, addresses or personal identifiers were recorded instead code numbers were used where necessary.

3.9 Problems Encountered during field work

There was a challenge with transport due to poor roads and rain which further hampered the fieldwork. This necessitated hiring of motor cycles for the research assistants to be able to access respondents in hard and far to reach areas.

In certain instances respondents demanded monetary incentives in order to respond to questions but we were able to convince them that the research was for educational purposes only and not for commercial use.

CHAPTER FOUR

A GENDERED PERSPECTIVE OF CULTURAL FACTORS THAT INFLUENCE CONSERVATION OF USEFUL TREE SPECIES IN IGEMBE SOUTH SUB-COUNTY, UPPER EASTERN REGION

4.1 Introduction

This chapter presents research findings based on data collected through the survey, focus group discussions, and key informant interviews.

4.2 Socio-demographic Characteristics of Respondents

4.2.1 Distribution of Respondents by Age

Figure 4.1 shows the age of respondents who were interviewed. According to the results majority (42 percent) of respondents were aged 41-50.

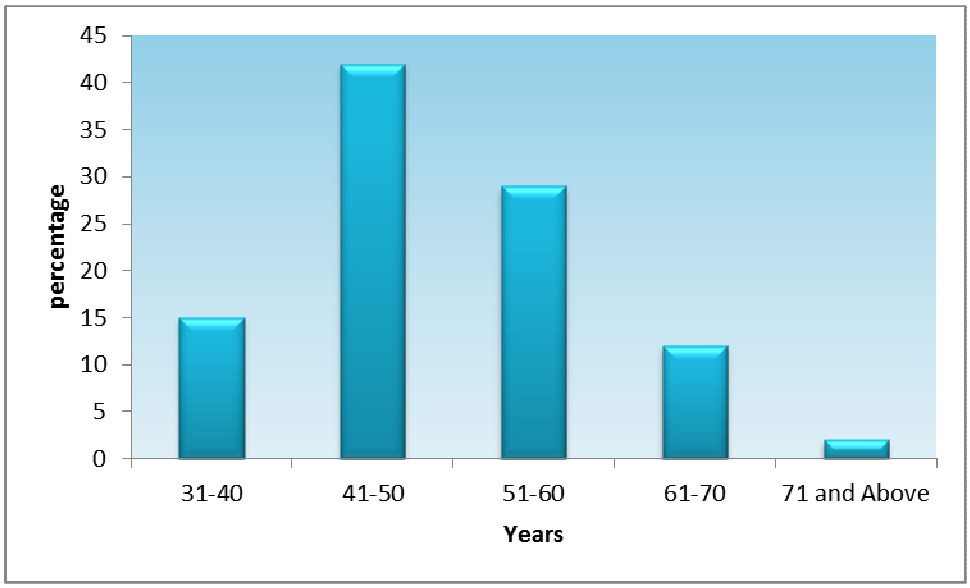

Figure 4.1: Distribution of Respondents by Age

4.2.2 Distribution of Respondents by their Gender

The study was focusing on the cultural beliefs and taboos that influence conservation of useful tree species by men and women thus gender was a necessary demographic factor. Figure 4.2 shows the distribution of respondents by their gender. From the results, it can be concluded that males were the majority respondents (72.9 percent).

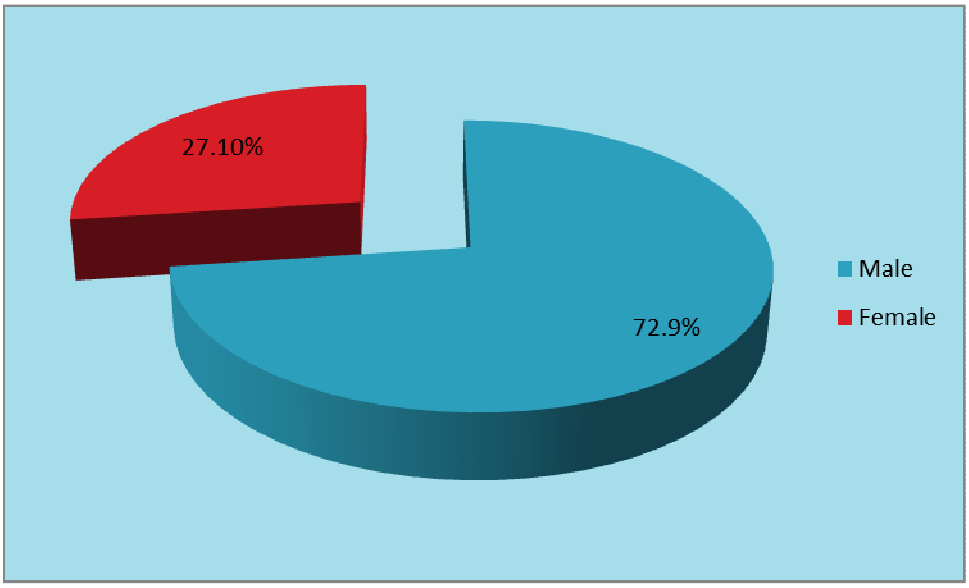

Figure 4.2: Distribution of Respondents by Gender

4.2.3 School Attendance

Table 4.1 shows the distribution of the school attendance by the respondents. A large majority (84.7 percent) of the respondents had attended school; only 15.3 percent of the respondents had no formal education at all.

Table 4.1 Distribution of School Attendance of the Respondents

Response	Frequency	Percent
Yes	50	84.7
No	9	15.3
Total	**59**	**100**

4.2.4 Highest Education Level

In relation to highest education levels attained, majority of the respondents (47.5 percent) had completed primary school as shown in Figure 4.3. Only 6.8 percent of the respondents had college level education.

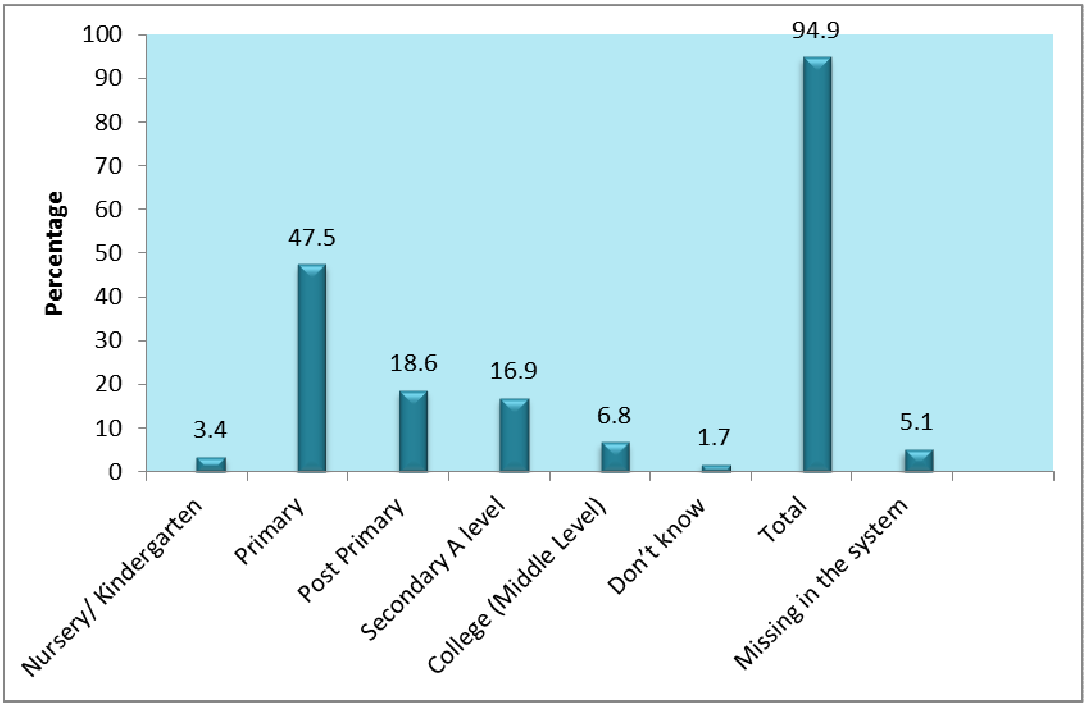

Figure 4.3 Distribution of Respondents by their Level of Education

4.3Types of Agroforestry Practiced by Respondents

Agri-silvi-pastoral (crops, fruit trees and pasture) and non agri-silviculture (crops and trees) are the main types of on-farm tree growing in Igembe and Athiru Gaiti locations. Figure 4.4 shows types listed with the frequency distribution of each.

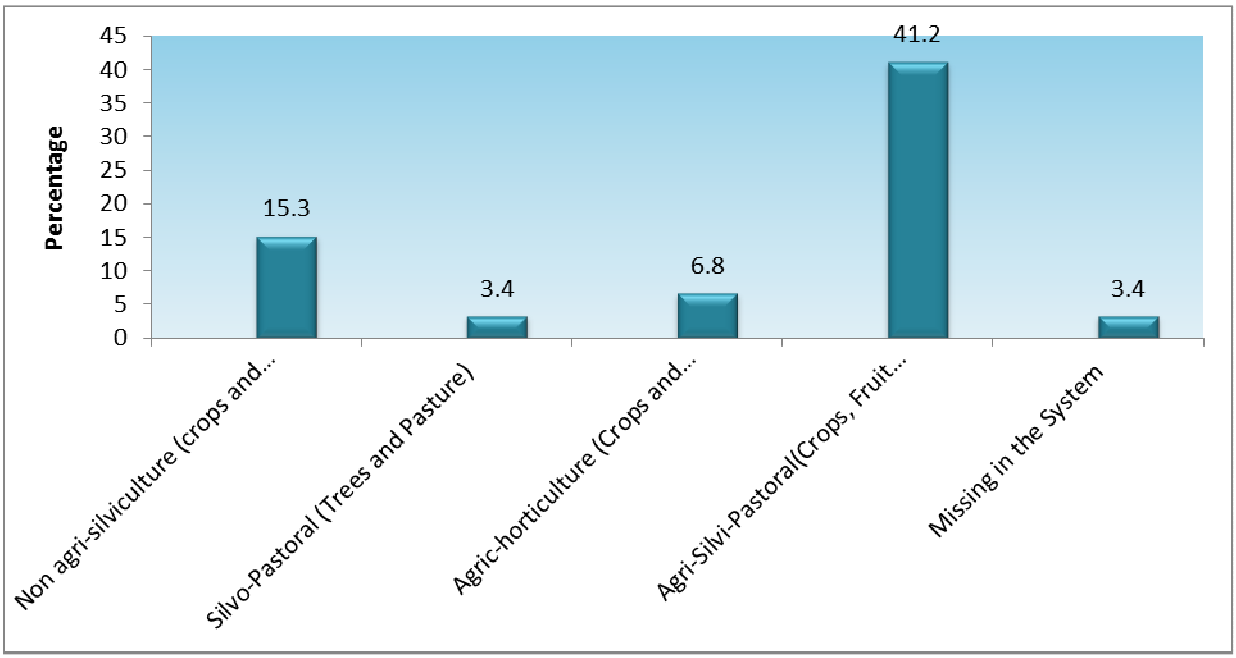

Figure 4.4 Distribution of response on types of agroforestry being practised

Key informant interviews and focus group discussions provided information on the most important tree species, both indigenous and exotic grown under the different types of agroforestry systems and reasons why they were preferred. Most trees found on farms were mainly exotic and had been deliberately planted by farmers for various uses. *Miraa (khat)* was the most common tree grown as a key source of income. It also has cultural significance in that it is used for marriage negotiations. A man who is proposing to a girl is expected to take a bunch of Khat (grade 1) to the girl's father. The girl is allowed to

taste the *miraa* and if she accepts it is taken that she has accepted to be married by the man.

Exotic species include C*alliandra calothyrsus* which is grown for wood fuel, poles, fodder, bee-forage and erosion control. *Leucaena* is fast growing and is used for fodder and nitrogen fixing. *Grevillea* does well with crops, provides shade, timber, green manure, firewood and income. Exotic species especially eucalyptus, which grows straight and fast are popular for poles although farmers are increasingly being discouraged from planting this species along river beds and banks because they consume a lot of water and could therefore dry rivers. Exotic fruit trees have also been introduced on most farms. Common species include fruit trees like avocado, mangoes, macadamia, oranges, pawpaw.

Most common indigenous species include *Muangua (Milletiadula*) which is good for fodder. This species is however slow growing and may take about fifty years to mature. Meru Oak *(vitexkeniensis)* is good for timber and furniture. *Mweria (Prunus africana)* is popular for medicine from its bulk and timber. *Muringa(Cordia africana*) is good for timber, fuel wood, furniture, shade ornamental and soil conservation. *Mutunguu(Commiphoraeminii)* is used for yam support, live fence, timber, fodder.

4.3.1 Roles of Trees Planted

The roles given for trees planted were source of timber, source of firewood, source of income, source of mulch which is used as manure, shade and any others specified. Table 4.2 shows distribution of roles.

Table 4.2: Responses on roles played by the trees planted

Role	Frequency	Percent
Timber	56	95
Source of Firewood	56	95
Source of Income	56	95
Source of Mulch which is used as manure	40	68
Shade	30	51
Missing in the System	2	3

Majority of the respondents (95percent) stated that they planted trees as a source of timber, income, and firewood.68 percent indicated that they planted trees as sources of mulch and 51percent planted trees for purposes of shade. Two respondents however did not indicate their responses on why they planted trees. It is therefore evident that respondents in the study area plant trees for diverse reasons. A response from one key informant supports this finding. He had this to say:

> *"One of the important factors to consider for agroforestry species is diversity of use. The choice of species for planting depend on purpose for planting which include income, nitrogen fixing, livestock fodder, green manure, timber, wind breaks, soil rehabilitation, bee-forage, boundary marking, timber, medicine, fuel wood, human food"(Kenya Forest Services Officer, Athiru Gaiti Location).*

4.4 Gender Roles in Conservation of Useful Trees

The study examined the roles of men and women in tree planting activities. It came out clearly from the qualitative aspect of the survey that both men and women had important

roles to play in conservation of useful trees on the farm. These roles included planting, managing, using and selling. Experiences of women in relation to tree planting activities were however different from those of men. While men were involved in all the mentioned activities, women's role was constrained when it came to cutting or selling tree resources. This was considered almost exclusively a male's task. This raises important gender issues with regard to women's right to trees as unequal gender roles exist in accessibility and control of resources.

4.4.1 Women's role in use of trees they plant and tend

Figure 4.5 below shows findings on whether women had a right to use any of the trees they planted and tended. 93 percent of the respondents stated that women had rights to use trees they plant while only 7 percent disagreed with women using any type of the trees they planted and tended.

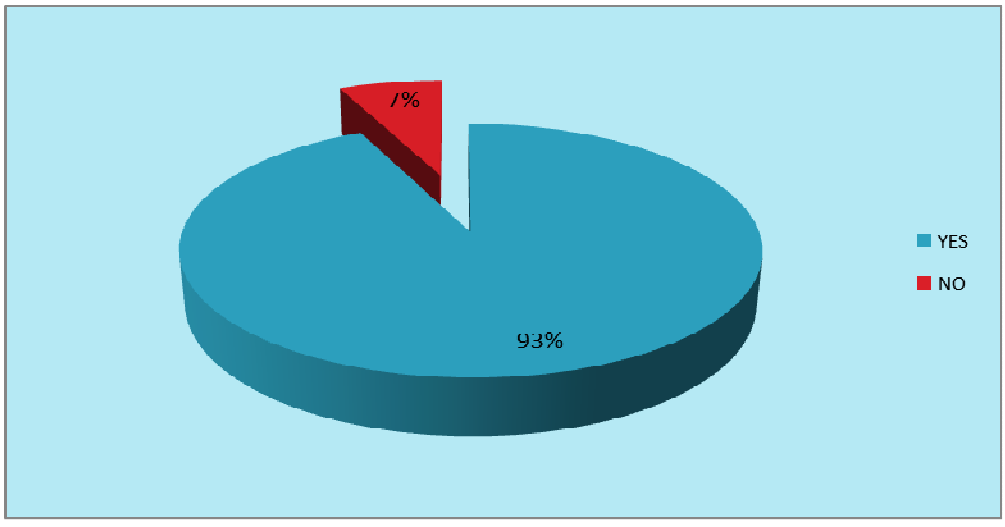

Figure 4.5 Distribution of Respondents on women's role in use of trees they plant

Focus Group Discussions provided further insights into women's role in relation to use of trees they plants as illustrated by the following excerpts:

> *Trees are controlled by men. Miraa belong to men only. Even traditionally it was the man's role to plant and women and children were prohibited (Farmer from Athiru Gaiti location).*
>
> *Trees are sensitive and culturally they belong to men. Utility by women is not an issue but if women cut trees this can bring conflict since it is considered a challenge to man's authority. (Kenya Forest Service key informant, Athiru Gaiti location)*

4.4.2 Decision Making Role on Tree Planting

The study investigated who in the household made decision about tree planting

Table 4.3 Distribution of responses on decision about tree planting

Response	Frequency	Percent
Male	32	54.2
Shared	27	45.8
Total	**59**	**100.0**

From the findings, 54.2 percent indicated that the male makes decisions about tree planting while 45.8 percent indicated that the decision was shared by both the male and female of the household. There were no respondents who indicated that women alone had a role to play in decision making on tree planting. From the above results it can be

pointed out that majority of the respondents were of the opinion that the decision about tree planting rested with the men.

4.4.3: Decision Making Role on Tree Harvesting

The study also sought opinion of the respondents on who made decision about tree harvesting whether it was the male, female or both. Figure 4.6 shows the results. 84.7 percent of the respondents who are the majority said that the male in the household made decision about tree harvesting while 15.3 percent said that the females made the decision.

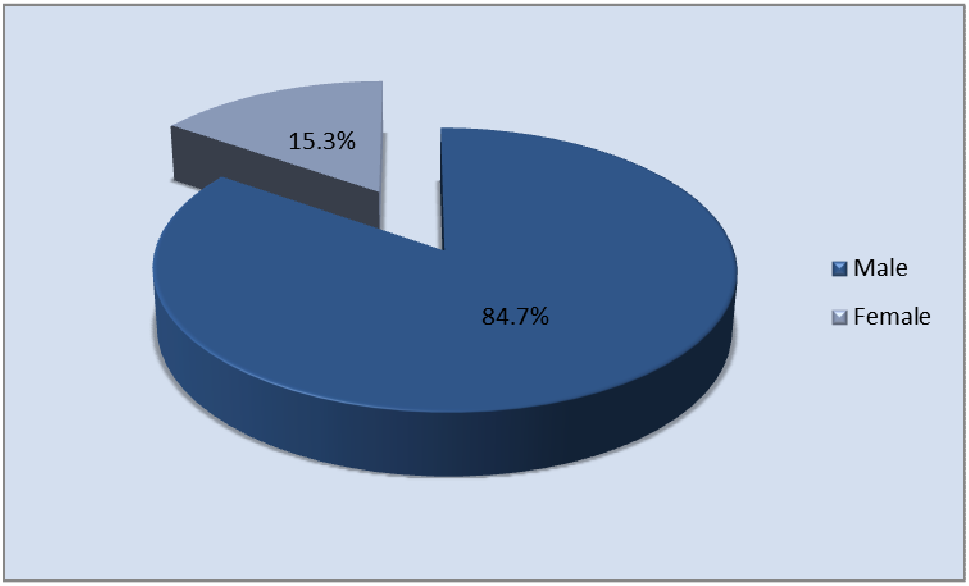

Figure 4.6 Distribution of response on who should engage in tree harvesting

4.4.4 Decision on Use of Products

As indicated by findings shown in Table 4.4, 50.8 percent of the respondents said that the decisions on the use of products rested with the male while 49.2 percent said that the decision should be shared.

Table 4.4 Distribution of Respondents on who should determine use of products

Response	Frequency	Percent
Male	30	50.8
Shared	29	49.2
Total	**59**	**100.0**

Use of products does not necessarily lie with men or women. This is supported by finding from focus group discussions as illustrated by FGD with one women group:

> A*ccording to Ameru culture women were prohibited from harvesting, cutting or selling tree products. Currently things have changed due to education, Christianity although some members of the community still follow the old cultural ways (Nturene women group member, Kiegoi).*

4.4.5 Decision on Spending Money from tree resources

With regard to whose role it was to determine how money was spent, majority of the respondents (88.1 percent) indicated that the male determined how income was spent while 10.2 percent said that the females in the household determined how income was spent. However, one respondent did not indicate a response. Table 4.5 shows the responses.

Table 4.5 Distribution of Respondents how money should be spent

Response	Frequency	Percent
Male	52	88.1
Female	6	10.2
Missing in the system	1	1.7
Total	**59**	**100.0**

4.5 Cultural Beliefs and Taboos Influencing Planting of Different Tree Species

The study established that cultural beliefs and taboos influenced planting of certain tree species by men and women.

4.5.1: Cultural Beliefs on types of trees that should not be planted by women

Table 4.6 shows the results on whether there were some types of trees that should not be planted by women due to cultural beliefs.

Table 4.6 Distribution of response on whether some trees should not be planted by women

Response	Frequency	Percent
No	46	78
Yes	13	22
Total	**59**	**100.0**

The results show that majority of the respondents (78 percent) did not believe that there were some trees that should not be planted by women. However, 22 percent of the

respondents said that some trees should not be planted by women. Different Focus Group Discussions confirm this finding:

> *Women are not allowed to plant some trees like Mutuntu (Croton macrostachus), it is believed that the tree cannot grow and if it grows then somebody will die and this will be followed by drying of the tree (Woman group member, Kiegoi Location).*
>
> *Traditionally it is only man who could plant miraa trees. Miraa is an income generating crop and women should not carry any income generating activity in the society (Key informant, Athiru Gaiti Location).*
>
> *Trees like fig tree are not allowed to be planted by anybody. It just grows on its own on the shamba (Njuri Ncheke Elder, Athiru Gaiti Location).*
>
> *According to Ameru tradition, men planted trees while women planted arrow roots, sweet potatoes (Woman group member, Athiru Gaiti Location) Certain trees such as Muthande* (*Bersamiaabyssinica*), *Muroo* (*Flacourtiaindica) are associated with barrenness, cursing or bad omen and should not be planted by anybody. If found on the farm, such a tree is uprooted to avoid calamity of dying falling on the people (Njuri Ncheke Elder, Kiegoi Location).*

4.5.2 Cultural beliefs and taboos that hinder women from cutting trees

The study further investigated whether there were any trees that were not to be cut for any purpose by women due to cultural beliefs or taboos. Responses are shown in Table 4.7.

Table 4.7 Distribution of response on whether there are trees not to be cut for any purpose by women

Response	Frequency	Percent
Yes	27	46
No	32	54
Total	**59**	**100.0**

Results indicate that 46 percent of the respondents agreed that there were trees that should not be cut by women for any purpose while majority (54 percent) said that there were no such restrictions on tree cutting by women.

It was noted from focus group discussions with the women that, culturally men made decisions on tree cutting and women require permission from the men to harvest fuel wood if this involves cutting a tree. However women were allowed to prune branches for firewood or livestock fodder. Individuals who disobeyed were fined. Reasons advanced that inhibit women from cutting certain tree species include:

> *If a woman cuts a tree without permission from the husband she can be fined a he goat by the clan or immediate family members, or can be beaten and sent back to her parents' home for disobeying. (Nturene Women Group member, Kiegoi location).*

No one irrespective of their gender had permission to cut a sacred tree for example *Mugumo* (fig tree). The community believes that that the fig tree has supernatural powers

to mediate between them and their ancestors hence sacrifice used to be offered under the tree.

> *Mugumo **i**s a sacred tree. There are fines for cutting such trees. If fine is not paid the elders will camp in the victims homestead until the fine is paid failure to which a curse will be administered. (Njuri Ncheke elder, Kiegoi Location).*
>
> *A woman is not allowed to cut sacred trees and if she does, she is supposed to be cast out of the community (Farmer, Athiru Gaiti Location).*
>
> *A woman should not cut any tree since she will be disgracing all the men in that (Farmer, Kiegoi Location).*
>
> *A woman is not allowed to cut Muuru (*Meru Oak*) since it is source of rain and once cut down there will be no rain in an area (Farmer, Kiegoi Location).*

It was noted from key informant interviews that that men do not require permission to cut trees or parts of trees on their land even when women have planted them as illustrated by the following excerpt:

> *Tree resources belong to the head of the household (Farmer, Athiru Gaiti, location).*

4.6 Effect of Cultural Beliefs and Taboos on Tree Planting

As regards whether the respondents' practice of tree planting had been affected by the different cultural beliefs and taboos, over half of the respondents (61 percent) indicated that tree planting was not in any way influenced by cultural beliefs whereas the rest (39 percent) indicated that tree planting was influenced by cultural beliefs. . Table 4.8 shows the findings.

Table 4.8 Distribution of responses on tree planting and cultural beliefs

Response	Frequency	Percent
No	36	61
Yes	23	39
Total	**59**	**100.0**

Focus group discussions and key informants agree with this later finding as illustrated by the following responses:

Key informants narrated*:*

> *Fig tree seems strong but due to cultural beliefs I cannot plant or cut it down; one who plants the tree could die to give life to the tree. (Male Farmer, Kiegoi Location).*
>
> *We cannot plant all trees. Mutuntu (Croton macrostachus) is not planted near the homestead. Some birds which are believed to be source of bad omen could come and stay there and cause death to a family member. (Female Farmer, Kiegoi Location) I love good timber and some of the sacred trees are source of good timber but I cannot cut them. Trees like the* fig tree *occupy a large space on the farm yet one cannot cut it*
>
> *(Male Farmer, Athiru Gaiti Location).*
>
> *Nthale* (palm tree) *is considered sacred. Cutting would delay the rain (Female farmer, Kiegoi Location).*

Species used for cursing like Muthande (*Bersamiaabyssinica ,Muroo* (*Flacourtiaindica) have no benefit; cannot even be used as animal fodder (Male farmer, Kiegoi Location).*

CHAPTER FIVE

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents discussion, conclusions, recommendations based on findings in chapter four. The study established that the study area has a rich variety of tree species grown on the farm. Population pressure, lack of grazing land and fuel wood has contributed to tree growing on farms. The choice of species for planting depend on purpose for planting which includes improvement of soil fertility (green manure, mulching), animal fodder, shade, saleable products such as timber, fire wood, fruits among others. The essence of growing trees on the farm is to provide multiple benefits to the farmer.

5.2 Discussion

In objective one, the study set out to examine the roles of men and women in conservation of useful trees in Igembe Sub-County. Data indicates that both men and women play a significant role in tree management activities which include planting, managing, using, selling. However, although males and females worked side by side especially in providing labour, decision on use of tree resources is generally male-dominated, and women play limited roles in access and control over trees resources even with regard to trees that they had planted. This demonstrates that gender dynamics is important in agroforestry as it determines who has access and benefits from tree resources. Results of a study by Gandari and Mutsau (2014) on Dynamics of Gendered

Division of Labour in Agroforestry in Gokwe area of Zimbabwe revealed similar findings. Men dominate women in agroforestry practice as patriarchal gender expectations hinder women from participating equally. As such men are better positioned than women in accessing and benefiting from proceeds of trees conserved on the farm. There are exceptions to this finding as illustrated by a research from Kenya Wood fuel Development Project where it has been established that women in Kakamega District do plant, manage, and harvest Sesbania sesban (a shrub) to produce fuel wood and to improve soil fertility for the crops they raise on their husband's croplands (Rocheleau, 1987). This gender division of access and control is however limited to certain species. Furthermore, shrubs and small trees such as Sesbania sesbanare considered women's plants, particularly where they are connected with food production and fuel wood, hence giving women rights over the trees.

The study established that compared to men, women are disadvantaged in their access to tree resources due to socially perceived gender roles. Tree harvesting for example is mainly a man’s job. Women are not allowed to cut trees as this is considered disrespectful to the men. Ownership is by men, utility by women. Women can therefore prune trees for firewood, fodder, or pick fruits for family use. This finding is in line with Kiptot and Franzel (2011) results from a review of gender and agroforestry in Africa which indicates that women are disadvantaged when it comes to decision making on tree harvesting as they have to obtain permission from the men. Women only have autonomy to collect twigs and branches for fuel. Regarding who makes decisions on harvesting of tree products, Kiptot and Franzel (2011) noted that women’s decision power in Malawi was dependent on the part of the tree harvested.

Tri et al. (2012) had similar findings in a study on Gender Roles of Farmer Families in Vegetable-Agroforestry System in Indonesia. Men had a dominant role in decision making on financial resources. In the area of study, it was mainly the male who made decisions although there were exceptions for female- headed households. A case study by Biggelaar (1996) on knowledge generation processes in agroforestry systems in Rwanda also show that women do not own trees, but an exception is made for female heads of household. People justified single women's ownership of trees with the statement that “Women without husbands are men". Single women are equated with men; hence they can also plant trees and make farm management decisions which in most cases are not allowed of married women since land is owned by the husband.

The second objective was to establish the cultural beliefs and taboos that influence men and women’s participation in agroforestry. The study confirms the existence of cultural beliefs, superstitions and taboos that guided conduct towards tree conservation in Igembe sub-county. As (Negi, 2010) indicates, this class of informal institutions defines the human behaviour and also guides people’s conduct towards the exploitation of the natural resources in the sub-county.

Findings further reveal that there are cultural beliefs and taboos that prohibit men and women from planting certain tree species. Kiptot and Franzel (2011) noted that cultural beliefs that include ritual prohibitions against planting or using certain trees have a strong influence on agroforestry adoption.

Examples of these species are *Muthande* (*Bersamiaabyssinica*), *Muroo* (*Flacourtiaindica*), *Mukuo (Cordia Monoica Ovalis).*These tree species are culturally believed to bring bad omen and are also used for cursing. The present study shows similarities in culture with other communities in the world. Das and Mitchell (2005) study on Beliefs, Superstitions and Taboos associated with Bamboos in Nepal show a considerable presence of taboos and beliefs associated with bamboo tree. A commonly held belief is that those who plant bamboo tree will die early hence the tree is not be planted by young people.

Muthande is poisonous to people and animals and is also associated with barrenness and is uprooted once found on the farm to avert calamity such as death. Similarly, there are tree species in Ghana which are considered to have bad omen as shown by a study by Myren and Andel (2011) on Magic Plants in the South of Ghana. People are afraid of *Ahomabosom* tree, because it is believed to cause harm to others. Before cutting this tree libation has to be poured –otherwise those cutting the tree could die.

Similar findings in western Kenya by Mugure and Oino (2013**)**, indicate that men dominate not only planting of certain tree species but most tree planting activities and this has been effectively sustained through well manipulated cultural practices (taboos).

According to Nwonwu (1996), it is regarded an abomination among the Ibo of southeastern Nigeria, for women to climb certain types of trees such as the oil palm, coconut palm or raffia palm. These taboos and prohibitions were a great hindrance for many women in the past, but women are increasingly going against taboos to plant and take care of trees.

Trees considered sacred and where ceremonies and sacrifice were often carried out are prohibited from being cut by both men and women. This is also common in several communities as highlighted by Wilson and Wilson (2013) article on the importance of figs as spiritual and material resource for humans. In Tanzania for example , figs are valued for their spiritual properties and are never cut down while in Cameroon, figs are used as sites for family worship .Among the Tacana of Bolivian Amazon, it is believed that spirits dwell in fig trees and cutting them down may cause illness. Among the Kikuyu, the fig tree is considered sacred and a medium through which prayers ascend to God. As such it is prohibited from being planted or cut. This belief is found in other communities whereby fig trees are believed to have spiritual connections. In Bolivia for example, soul-stealing spirits dwell in the canopy of figs and walking under, or felling, these trees can cause illness. In Papua New Guinea, figs are believed to be the haunt of evil spirits which would be released if they are felled. The fig tree is one of the most important trees in the study area and has cultural significance. Its most important cultural use is for prayer and sacrifice. It is therefore considered sacred. *Mugumo* tree is not to be planted by anybody in the homestead as this is believed to be a bad omen to the household members.

It is also customary that women generally should not cut trees as this is considered a man's job and it is disrespectful to men in that community if a woman does so. Women can only trim the branches for purpose of getting firewood but may not cut trees without obtaining permission from the men as all resources in the family belong to the man. As Rocheleau and Edmunds (1997) indicate, wives among the Luo community of western Kenya have rights of collection and use of fruits, but are restricted from harvesting fuel wood of

high value timber trees. Among the Akamba community of eastern Kenya, Rocheleau and Edmunds (1997) report that tree planting and felling have been primarily a male's domain, while women have enjoyed use and access rights to fodder, fuel wood, fiber, fruits and mulch.

Traditionally trees like *miraa* are considered 'men trees' and women and children had limited role to play in their conservation. *Miraa* has cultural significance even today and it is used for marriage negotiations. As a way of introduction, a young Meru man is expected to offer a bundle of *miraa* to prospective father-in-law. This finding is supported by Rocheleau (1992) statement that certain tree species may have culturally defined gender specific and ownership restrictions. In addition, Mugure and Oino (2013) also indicates that tree planting activities in parts of Kenya are dominated by men and it has been effectively sustained through cultural practices. As such women are denied ownership of trees due to this practice. To ensure that this vital customary requirement is sustained, certain reasons are advanced as to why men or women are not allowed to plant trees (Oloo, 2013).

Financial resources after sale of trees are controlled by the male and benefits rarely get to the women and children. This means that the woman is highly dependent on the man. Carsan and Holding (2006) case study on Meru timber marketing pilot programme indicated that among the Meru community, tree management and harvesting decisions were gender biased. Men are the ones who determined tree sales for both timber and firewood. Continuous pruning by women for firewood is allowed. Women's rights to tree

products are usually limited to products that are considered to have little or no commercial value as indicated by E.Kiptot and S. Franzel. (2012).

The study established that, the presence of Njuri Ncheke, male only council of elders maintains Ameru culture and enforces traditional laws governing tree conservation. Tree cutting by women was prohibited and fines (usually a sheep) could be administered by the elders to those who do not adhere to the tradition. If the fine was not paid a curse would be administered. Such cultural practice though not very common is still practiced. Anyone who cut a sacred tree was also fined irrespective of gender.

In relation to objective three, the analysis indicates that cultural beliefs and taboos have influenced conservation of useful tree species by women and men. Due to cultural restrictions, males are generally considered owners of trees conserved on the farms in the study area while it is customary that women do not own tree resources. All uses that entail cutting a tree are male dominated; decisions on income generated from the trees belong to the male, while cutting branches for fuel, leaves for animal fodder, or picking fruits for family use are left to the woman. This is irrespective of whether the woman planted the trees. All resources in the family are considered the property of men making women highly dependent on men.

Not all trees can be planted due to cultural beliefs and prohibitions. For example, there is continuing spiritual significance of sacred trees in the community. Fig tree for example is good for timber but it cannot be planted or cut down due to belief that it is a sacred tree and anyone who plants the tree could die to give life to the tree. As indicated by (Kiptot

and Franzel, 2011), ritual and taboo prohibitions against planting or using certain tree products are powerful determinants of people's actions, and often hold local influence

Another tree that cannot be planted near the homestead is *Mutuntu (croton macrostachus).* It is believed some birds which are believed to be sign of bad omen could come and stay on the tree and cause death to a family member. This tree is good for timber, poles, soil conservation and has medicinal value. Species believed to be used by elders for cursing like *muroo, muthande* have no benefit; cannot even be used as animal fodder.

5.3 Conclusion

Considering the above findings, it can be concluded that there are a number of cultural prohibitions relating to trees conservation in the community. The most common is the prohibition against cutting certain tree species especially fig tree which are considered sacred and other indigenous species which are believed to be source of bad omen.

The data also revealed that due to cultural beliefs, women's rights to trees are restricted. Men have greater control and decision-making powers over tree resources. It was observed that, the only activities women are allowed to do in tree growing without asking for consent from men are watering, weeding and tending.

5.4 Recommendations

The study makes the following recommendations:

There is need to sensitize community members on cultural barriers to conservation of trees by men and women so as to promote gender equity in agroforestry and to ensure that men and women benefit fully.

The study also recommends a comprehensive research that will provide valuable insights into the changing cultural beliefs by the local community in relation to the conservation of useful tree species for posterity.

REFERENCES

Ahlawat, S. ,Hasumati ,S. Dhodh, and Mulyankan, D . (2009). Empowerment of Rural Women through their Participation in Agroforestry. Issues in *International Research Journal* Vol. II, Issue-5

Bankole, A. Adekoya E. and Nwawe,C.(2012). Women's Awareness and Utilization of Agroforestry Practices in Oluyole Local Government Area of Oyo State, Nigeria: Issues in International Journal of Agricultural Economics & Rural Development - 5 (1)Available at http://www.lautechaee-edu.com/.Retrieved on March 3 2014.

Bernard R.H. (2013). *Social Science Research Methods.* LosAngeles: Sage Publications.

Biggelaar,C (1996). *A case study of knowledge generation processes in agroforestry systems in Rwanda* .Food and Agriculture Organization of the United Nations © FAO 1996. Available at http://www.fao.org/docrep/006/w2406e/W2406E04.htm. Retrieved on November 21 2014

Kanji, N, Tan S, Toulmin C. (*2007). Woman's Role in Economic Development.* Available at http://books.google.co.ke/books? . Retrieved on March 17 2014.

Carsan, S and Holding C. (2006).*Growing farm timber: practices, markets and policies. The Meru timber marketing pilot programme case studies and reviews*. Available at https://www.cbd.int/financial/privatesector/kenya-privatetimber.pdf. Retrieved on March 18 2014

Castro, A. (1991). Indigenous Kikuyu Agroforestry: A case Study of Kirinyaga, Kenya. Available at http://link.springer.com/. Retrieved on March 10 2014.

Colding, J., and C. Folke. 1997. *The relations among threatened species, their protection, and taboos.* Available at URL: http://www.consecol.org/vol1/iss1/art6/.Retrieved on March 22 2014.

Dawson I. Harwood C.Jamnadass R. and Beniest J. (2011).Agroforestry tree domestication: A primer. Available at http://www.tropicallab.ugent.be/agrofordom..Retrieved on March 20 2014.

Dawson, I.K.; Guariguata, M.R.; Loo, J.; Weber, J.C.; Lengkeek, A.; Bush, D.; Cornelius, J.P.; Guarino, L.; Kindt, R.; Orwa, C.; Russell, J.& Jamnadass, R.H (2013).*What is the relevance of smallholders' agroforestry systems for conserving tropical tree species and genetic diversity in circa situm, in situ and ex situ settings.* Available at http://www.cifor.org/online-library/.Retrieved on March 23 2014.

Das A.N and Mitchell C.P. (2005).Beliefs, Superstitions and Taboos associated with Bamboos in Nepal and its implications. Available at https://japanesemythology.wordpress.com. Retrieved on 21 November 2014.

Dolan, Catherine. "Meru."Encyclopedia of World Cultures Supplement. 2002. Available at Encyclopedia.com: http://www.encyclopedia.com/doc/1G2-3458100064.html.Retrieved on July 24, 2014.

E.Kiptot and S. Franzel. (2012): Gender and agroforestry in Africa: a review of women's participation. Available at http://paperity.org/p/8113169/gender-and-agroforestry-in-africa-a-review-of-womens-participation. Retrieved on November 21 2014.

E.Kiptot and S. Franzel. (2012): Gender and agroforestry, who benefits. Available at http://link.springer.com/.Retrieved on March 24 2014.

Enete, A. and Amusa, T. (2012).Contribution of Men and Women to Farming Decisions in Cocoa Based Agroforestry Households of Ekiti State, Nigeria. Available athttp://www.tropicultura.org.Retrieved on March 17 2014.

Fisher, A.A.,Laing, J.E., and Townsend, J.W.(1991). *Handbook for family planning operations research design 2nd ed. United States.*

Food and Agriculture Organisation (2011).The role of women in agriculture. Available at http://www.fao.org/publications/sofa/en/ .Retrieved on March 17 2014.

Food and Agricultural Organisation.(2011). Global Forest Resources Assessment 2010.Available at http://www.fao.org/docrep/.Retrieved on March 28 2014.

Food and Agricultural Organisation (FAO). 2003. Farmer Experimentation and Innovation. A case study of knowledge generation.FAO Corporate Document Repository. Available at http://www.fao.org/docrep/.Retrieved on March 27 2014.

Fortmann, L and Rocheleau,D(1985). Why agroforestry needs women: Four myths and a case study. Available at http://link. Springer .com/. Retrieved on March 17 2014.

Franzel. S and Scherr, S. (2002). *Trees on the farm: assessing the adoption potential of agroforestry practices in Africa.* .Available at http://www.do.ufgd.edu.br/ .Retrieved on March 20 2014.

Gandari, E and Mutsau, S (2014). *The Dynamics of Gendered Division of Labour in Agroforestry: A case Study of Njelele Ward III in Gokwe Zimbabwe.* Available at http://link.springer.com/. Retrieved on November 21 2014.

Gichere, N, and Ishida S (2008).*The Indigenous Knowledge of the Ameru of Kenya.* Meru Kenya. Meru Museum.

Howard, L.A. and Nabanoga, G. 2007. Are there customary rights to plants? An Inquiry Among the Baganda (Uganda), with special attention to gender. Available at http://ebrary.ifpri.org/cdm/search/searchterm/Agrobiodiversity.Retrieved on April 8 2014.

International Council for Research in Agroforestry (ICRAF) .(1989).Agroforestry Development in Kenya. Available at http://www.worldagroforestry.org/downloads/publications/PDFs/79 Agroforestry development in kenya. Retrieved on 10 April 2014.

Jerneck, A and Olsson , L. (2013). More than trees! Understanding the agroforestry adoption gap in subsistence agriculture: Insights from narrative walks in Kenya**.**Issues in Journal of rural studies. Available at http://www.sciencedirect.com/ .Retrieved on April 20 2014.

Kaonga, M. (2012).*Agroforestry for Biodiversity and Ecosystem Services – Science Practice*.

Rijeka, Croatia :InTech. Available at http://www.uco.es/zootecniaygestion/img/pictorex/29_16_16_Agroforestry.pdf.Retrieved on April 20 2014.

Kerkhof, P. (1992). Agorfrestry in Africa: A survey of project experience, Ipara Publication Ltd. Nairobi, Kenya.

Kiptot, E and Franzel, S. *(2011). Gender and Agroforestry in Africa: Are Women Participating?*.Available at http://www.worldagroforestry.org/.Retrieved on March 10 2014.

Kiptot , E. (2007). Seeing Beyond Fertiliser Trees: A case Study of a Community Based approach to Agroforestry Research and Development in Western Kenya. PHD. Thesis, Wageningen University, Wageningen, the Netherlands.

Kitalyi , A ,Robert , Otsyina C., Kimaro D. (2013) . FAO Characterisation of Global Heritage Agroforestry Systems in Tanzania and Kenya. Available at http://www.fao.org/.Retrieved on March 12 2014.

Lelo, Francis. 1994. Human dimensions in wildlife management: A case study of Ol Donyo Sabuk National Park, Kenya. Ph.D. dissertation proposal, Graduate School of Geography, Clark University, Worcester, MA. Available at http://archive.unu.edu/. Retrieved on March 21 2014.

Lembara, S and Mathooko J, 2013: Meru (North) County Long Rains Food Security Assessment Report 29th July to 2nd August 2013.Available at http://www.humanitarianresponse.info/system/files/documents/files/Meru.Retrieved on October 6, 2014

Mackneely, J. and Schroth, G. (2005).Agroforestry and Biodiversity Conservation – tradional Practices, Present Dynamics, and Lessons for the Future. Biodiversity and Conservation.Available at http://link.springer.com/article/.Retrieved on May 4 2014.

Manfre, C. and Rubin, D. (2012).*Integrating gender into forestry research.* Available at http://www.cifor.org/publications. Retrieved on 16 April 2014.

Meru County Government (2013). First Meru County Integrated Development Plan2013-2017.). Available at http://meru.go.ke/content.php. Retrieved on 14 July 2014

Mugure,A. and Oino, P. (2013).*Benefits of Agroforestry Farming Practices among Rural Households in Kenya: Experiences among Residents of Busia County.* Available at http://www.researchgate.net/publication/.Retrieved on April 14 2014.

Myren. B and Andel, T (2011).Magic Plants in the South of Ghana.Available at http://osodresie.wikispaces.com/. Retrieved on November 23 2014.

Nahayo, A.Emukule .I and Akazanwenimana.L. (2013). Assessing the adoption Level of Agroforestry Species in Nyabihu District Rwanda. *Issues in international Journal of Basic and Applied Sciences* Vol. 2.No. 4.Available at http://crdeep.com/.Retrieved on April 10 2014.

Nair, R; Garrily, D. (2012): Agroforestry-the future of global Lands. Newyork. Springer Dordrecht.

Nair P.K (1989). *Agroforestry Systems, practices and technologies*. In; Nair P.K (ed.) Agroforestry Systems in the tropics. Kluwer Academic Publishers in Co-operation with ICRAF, Dordrecht, Netherlands and Nairobi Kenya.

Negi, C. (2010).The institution of taboo and the local resource management and conservation surrounding sacred natural sites in Uttarakhand, Central Himalaya Chandra Singh Negi Department of Zoology, L. S. M. Government Post Graduate College, Pithoragarh, Uttarakhand 262502, India. Available at http://www.academicjournals.org. Retrieved on March 29 2014.

Ngetich , F. K. , Shisanya, C, Mugwe J, Muna, M and Mugendi, D (2012). *The Potential of Organic and Inorganic Nutrient Sources in Sub-Saharan African Crop Farming Systems, Soil Fertility Improvement and Integrated Nutrient Management - A Global Perspective.*

Available at http://www.intechopen.com/ .Retrieved 14 April .

Nwonwu .F.(1996). The gender role and the future of agroforestry in Africa. In: Mugah JO (ed) Proceedings of the first Kenya agroforestry conference on People and Institutional Participation in Agroforestry for Sustainable Development.

Available at http://books.google.co.ke/books?. Retrieved on 21 November 2014.

Oloo, O, J (2013).Influence of traditions/customs and beliefs/norms on women in tree growing in Siaya County, Kenya. Issues in Global Journal of Environmental Science and Technology Vol. 1(1) .Available at http://www.springjournals.net/full-articles/www.springjournals.net. Retrieved on March 18 2014.

Oxfam (1999) .Candida March, Ines Smyth, and Maitrayee Mukhopadhy.Guide to Gender Analysis Frameworks. Oxfam. Available at https://www.ndi.org/.Retrieved on March 10 2014.

Place F., Ajayi.O, Torquebiau, E., Guillermo, Gauthier, M. and Buttoud , G. (2012). *Improved Policies for Facilitating the Adoption of Agroforestry, Agroforestry for Biodiversity and Ecosystem Services.* Available at http://www.intechopen.com/books/agroforestry.Retrieved on April 2 2014.

Place, F, Adato, M, Hebinck, P and Omosa, M. (2005).The impact of Agroforestry-Based Soil Fertility Replenishment Practices on the Poor in western Kenya. Available at http://www.ifpri.org/sites/default/files/publications/rr142.pdf. Retrieved on 21 November 2014

Rocheleau. D. and Edmunds, D. (1997). Women, men and trees: gender, power and property in forest and agrarian landscapes. World Development 25(8): 1351-1371.

Rocheleau, D. (1988). Socio economic Aspects of Agroforestry Development. Gender Division of Work, Resources, and Rewards in Agroforestry Systems. Agroforestry Development in Kenya: Available at http://www.worldagroforestry.org/ . Retrieved on November 21 2014.

Reifsnyder, S and Darnheifer, T. (1989).*Meteorology and Agroforestry.Nairobi: International Centre for Research in Agroforestry*. Available at http://books.google.co.ke/.Retrieved on March 31 2014.

Roshetko, J.M., E. Nugraha, J.C.M. Tukan, G. Manurung, C. Fay, and M. van Noordwijk. 2006. Agroforestry for Livelihood Enhancement and Enterprise Development. Paper Presentation at the International Workshop on Integrated Rural Development in East Nusa Tenggara Province, held in Kupang, East Nusa Tenggara, Indonesia 5-7 April 2006. Available at http://www.fao.org/uploads/media/Agroforestry for Livelihood Enhancement and Enterprise Development.pdf. Retrieved on March 28 2014.

Tengnas B.1994.Agroforestry. Extension manual for Kenya .Nairobi: International Centre for Research in Agroforestry Available at http://www.worldagroforestrycentre.org/downloads. Retrieved on March 3 2014.

Tewari, S. (2008).*Farm Forestry: Agro-forestry. College of Agriculture G.B. Pant University of Agriculture and Technology* .Available at http://nsdl.niscair.res.in. Retrieved on March 28 2014.

Tri ,K; Herien, P; Tin, H .(2012).Gender Roles of Farmer Families in Vegetable-Agroforestry System: A Case Study at Nanggung Sub district, Bogor, West Java, Indonesia. Available at http://repository.ipb.ac.id/handle/123456789/64244. Retrieved on November 23 2014.

Wilson, D and Wilson. A (2013).Figs as a Global Spiritual and Material Resource for Humans**.** Available at http://link.springer.com/article/. Retrieved on 22 November 2014.

World Agroforestry Centre. (2009). Annual Report 2008-2009: Agroforestry - a global land use. Available at http://www.worldagroforestry.org/downloads/publications/.Retrieved on April 1 2014.

World Bank, (2014).Leveling the Field: Improving Opportunities for Women Farmers in Africa" Available at http://reliefweb.int/sites/reliefweb.int/.Retrieved on 16 April 2014.

Zomer R, Trabucco A, Coe R, Place F, van Noordwijk M, Xu JC. 2014. Trees on farms: an update and reanalysis of agroforestry's global extent and socio-ecological characteristics. Working Paper 179. Bogor, Indonesia: World Agroforestry Centre (ICRAF) Southeast Asia Regional Program. Available at http://www.worldagroforestry.org/downloads/publications/. Retrieved on March 10 2014.

APPENDICES

Appendix A: Survey Questionnaire

CATHERINE NDEI
P.O BOX 6837
00100 NAIROBI – KENYA JUNE / JULY, 2014
ATTN: TO WHOM IT MAY CONCERN

Dear Sir / Madam,

RE: REQUEST FOR PERMISSION TO CARRY OUT RESEARCH

My name is Catherine Ndei a post graduate student at the University of Nairobi. I am currently undertaking my research project on the topic A Gendered Perspective of Cultural Factors That Influence Conservation of Useful Tree Species in Igembe South Sub-County, Upper Eastern Region.

I kindly seek your assistance with the necessary data and information to carry out the assignment. The project research will be purely academic and the information gathered will only be used for the stated purpose and not for any other purposes. The information you give will be treated with utmost confidentiality. I request that you answer the questions as per the instructions provided.

Thank you for your assistance

Signature_____ Date_____

A. DEMOGRAPHIC INFORMATION

1. Age of respondent

   How old are you (in completed years ☐

2. Gender of respondent:

   Male ☐ Female ☐

3. Have you ever attended school

   Yes ☐ No ☐

4. What is the highest level of school attended

   Nursery/Kindergarten

   Primary

   Post-Primary

   Secondary, A level

   College (Middle Level)

   University

   Don't Know

B. OCCUPATION

5. Apart from farming what else do you do?

   Teacher

   Civil servant

   Business

   Other (please specify)

C. AGROFORESTRY

6. Which types of agroforestry are you practicing?

   Non agri-silviculture (crops and trees)

   Silvo-pastoral (trees and pasture)

   Agric-horticulture (crops and fruit trees)

   Agri-silvi-pastoral (crops, fruit trees and pasture)

7. How long have you been involved in tree conservation/planting? _____

8. Which species of trees do you prefer and why do you prefer these species?

Table 1: Tree species and reasons why preferred

Species	Reasons why preferred
1.	
2.	
3.	
4.	
5.	
6.	
7.	

9. What is the role of the trees that you have planted?
    a) Source of timber
    b) Source of firewood
    c) Source of income
    d) Source of mulch which is used as manure
    e) Shade
    f) Others (specify) _____

D. GENDER ROLES/DIVISION OF LABOUR

10. Please tell me about division of labour between men and women in the household

11. What do women do with regard to :

    Planting trees _____

    Managing _____

    Using? _____

    Selling? _____

12. How do men participate in agroforestry *?(probe for planting, harvesting, managing , tending , selling)*

E. CULTURAL BELIEFS AND TABOOS

13. What are the cultural beliefs or taboos concerning tree growing

14. Which are the cultural beliefs and taboos influencing planting of different tree species by men and women

    (Probe for traditional beliefs and taboos)

Table 2: Cultural beliefs and taboos influencing planting of different tree species

Trees species	Cultural beliefs	Taboos
1.		
2.		
3.		
4.		
5.		

15. Please tell me if your own tree planting has been affected by such beliefs

Yes No

Explain how _____

16. Do women have a right to use any of the trees they plant and tend

Yes No

Explain your answer

_____

_____

_____

17. Which trees should not be planted by women?

_____

_____

_____

18. Which trees should not be cut for any purpose by women?

_____

_____

_____

19. Should women have a right to use any of the trees they plant and tend?

Yes No

Explain your answer

_____

_____

_____

F. ACCESS AND CONTROL OVER RESOURCES

20. Who in your household makes decision about tree planting

Male female shared

21. What about tree harvesting?

Male female shared

22. What about use of the products?

Male female shared

23. Who determines how money is spent?

Male female

Appendix B: Focus Group Discussion Guide

1. What is the use of trees in Ameru tradition
   Probe for use of trees for peace making, sacred trees of worship and their local terms, trees for land demarcation, for seeking reconciliation, plants in ostracism, peacemaking and other uses of trees

2. Which are the useful tree species among the Ameru
   Probe for indigenous species and exotic species and their local names and their uses

3. Taboos associated with certain trees
   Probe for which trees

4. What species of trees are common in this area

5. What are uses of tree species grown in the area

6. What is the traditional significance of trees grown in the area (*probe for indigenous species*)

7. What are the roles of men and women in tree planting, tending, harvesting? Do they participate equally

8. Cultural beliefs and taboos that influence gender division of labour

9. Have they changed with time or are they still existing

10. Who owns and controls resources in the household. What about tree resources

11. Who determines how money from sale of tree products is used

12. What are the major constraints of planting trees

Appendix C: Key Informant Interview Guide

A. What agroforestry trees are grown in Igembe Sub- County?

What are their major uses?

Table 1: **Agroforestry trees and uses**

Agroforestry Trees	Uses
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

B. ACTIVITY /DIVISION OF LABOUR

1. Gender division of labour in the community
2. How does division of labour differ with different trees

   What do women do with regard to tree conservation?

   What do men do with regard to tree conservation?

C. CULTURAL BELIEFS AND TABOOS

3. What are the cultural beliefs and taboos that influence gender division of labour with regard to tree planting
4. Have these changed with time or are they still existing
5. If they have changed explain how
6. What should be done tochange these beliefs

D. ACCESS AND CONTROL OVER RESOURCES

7. Do women have adequate access to tree resources
8. If no who benefits most from resources
9. How does this access to resources affect their productivity
10. Do women have control over resources
11. What provides an incentive for women to conserve trees