

**FACTORS INFLUENCING FOREST CONSERVATION
IN BUNGOMA COUNTY. A CASE OF MT.ELGON
FOREST, KENYA.**

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DECLARATION

This project is My original work and has not been presented in any other university.

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DEDICATION

I dedicate this study to My family.

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Table of Contents

DECLARATION	ii
DEDICATION	iii
ACKNOWLEDGEMENT	iv
LIST OF TABLES	viii
LIST OF FIGURES	ix
ABBREVIATIONS AND ACRONYMS	x
ABSTRACT	xiii
CHAPTER ONE	1
INTRODUCTION	1
Background of the study.....	1
1.1 Statement of the problem.....	5
1.2 Purpose of the study	5
1.3 Research objectives	5
1.4 Research questions	6
1.5 Significance of the study	6
1.6 Limitations	7
1.7 Delimitation of the study	8
1.9 Assumptions of the study	8
1.10 Definition of significant terms	9
1.11 Organization of the study	11
CHAPTER TWO	13
LITERATURE REVIEW	13
2.1 INTRODUCTION	13
2.2 Forest conservation.....	13
2.3 Influence of Decentralization of forest Management practices on conservation of Mt.Elgon Forest.....	15
2.4 Influence of community participation on conservation of Mt.Elgon Forest.....	17
2.5 Influence of Awareness on conservation of Mt Elgon forest	23
2.6 Influence of ‘shamba system’ on conservation of Mt.Elgon Forest	25
2.7 Theoretical framework	28
2.8 Conceptual Framework.....	30
2.9 Summary of the review	32
2.10 Research gaps	32

CHAPTER THREE.....	34
RESEARCH METHODOLOGY	34
3.1 Introduction	34
3.2 Research Design	34
3.3 Target population	34
3.4 Sampling procedures and sample size	36
3.5 Research instruments.....	36
3.5.1 Validity.....	37
3.5.2 Reliability	37
3.5.3 Piloting	38
3.6 Data collection procedure.....	38
3.7 Data analysis Techniques	39
3.8 Ethical considerations.....	39
3.9 Operationalization of the study.....	40
CHAPTER FOUR.....	42
DATA PRESENTATION, INTERPRETATION AND ANALYSIS.....	42
4.1 Introduction	42
4.2 Questionnaire Return rate.....	42
4.3 General characteristics of the respondents.....	43
4.3.1 Relationship of the Characteristics of the respondent.	44
4.3.1.1 Age and Level of Education	44
4.3.2.2 Gender and level of Education.....	45
4.4.1 Decentralization of forest Management practices	46
4.5 Influence of community participation in conservation of Mt.Elgon forest	50
4.6 Influence of awareness on Forest Conservation.....	53
4.7 Influence of ‘Shamba System’ in Conservation of Mt.Elgon Forest.....	55
4.8 Kenya forest Department.....	58
CHAPTER FIVE.....	61
SUMMARY, DISCUSSION, CONCLUSION AND RECOMMENDATIONS	61
5.1 Introduction	61
5.2 Summary of the study.....	61
5.3 Discussion on the Study Findings.....	62
5.4 Conclusions of the Study.....	66
5.5 Recommendations of the study	67

5.6Contribution to the body of Knowledge	69
REFERENCE.....	70
APPENDICES.....	75
APPENDIX I: TRANSMITTAL LETTER	75
APPENDIX II: MT.ELGON FOREST QUESTIONNARE	76
APENDIX III:KEY INFORMANT SCHEDULE	80
APPENDIX IV:RESEARCH PERMIT	82

LIST OF TABLES

2.1 Global forest cover.....	14
Table 2.2 on typology of participation.....	20
Table 3.1 on target population.....	37
Table 4.1 on summary of general Characteristics of the respondents	47
Table 4.2 On Distribution of age and the level of education.....	48
Table 4.3 on Distribution gender and Education.....	49
Table 4.4 Reasons for the support of decentralization.....	51
Table 4.5 Reasons for the decline of decentralization.....	52
Table 4.6 Activities of CFA and other Conservation groups.....	53
Table 4.7 Target user groups.....	55
Table 4.8 On Sources of timber products.....	56
Table 4.9 Laws for forest Conservation.....	57
Table 4.10 Other importance of forests.....	58
Table 4.11 Civic Education in the Community.....	59
Table 4.12 Effects of ‘shamba system.....	60
Table 4.13 Causes of forest Fires.....	61
Table 4.14 Causes of Logging.....	61

LIST OF FIGURES

Figure:2.1On conceptual Framework on factors that influence forest conservation policy.....	33
Figure.3.2.Methodology Matrix.....	44

ABBREVIATIONS AND ACRONYMS

CBD	Convention on Biological Diversity
CFA	Community Forest Associations
CFUG	Community Forest User groups
CIA	Central intelligence agency
DC	District Commissioner
DV	Dependent Variable
ECZ	Environmental council of Zambia
FAO	Food and Agriculture Organization
FEPA	Federal environmental protection Agency
GBO	Global Biodiversity Outlook
GOK	Government of Kenya
GRZ	Government of republic of Zambia
ICRAF	International council for research in agroforestry
IIN	Indigenous information Network
IMF	International Monetary Fund
IUCN	International Union for the Conservation of Natural resources

IV	Independent Variable
JFM	joint forest Management
KANU	Kenya African National Union
KFD	Kenya Forest Department
KWS	Kenya Wild Life Service
MEICDP	Mt.Elgon integrated conservation development Project
MPD	Ministry of planning and devolution
MSP	Ministry of special programs
MT	Mountain
MTENR	Ministry of Tourism and natural resources
NGO	Nongovernmental Organization
NPC	National population commission
NTPS	Non timber products
PFM	Participatory Forest Management
PPF	Plan piloto forestal
SCBD	Sustainable Convention on Biological Diversity
STBA	Statistisches Bundes republic Ausland

UON	University Of Nairobi
USAID	United States of America International Development Agency
WCED	world commission on Environment
WHO	world Health organization
WRM	world rain movement

ABSTRACT

Mt.Elgon Forest land provides an important resource base for rural people's livelihoods. Despite above, there is an alarming increase of forest encroachment catapulted by uncontrolled human activities such as logging. Despite Concerted efforts by various Government and NGO agencies put on the ground to salvage the dilapidated Mt.Elgon forest, forest encroachment and degradation has gone on. The purpose of this study therefore is to establish the factors that influence conservation of Mt.Elgon Forest in Bungoma County. The objectives of the study are: To determine how decentralization of forest Management Practices influence conservation Mt.Elgon forest , to determine the extent in which community participation influence conservation of Mt.Elgon forest, to determine how awareness in forest conservation influence conservation of Mt.Elgon forest, and to establish how 'shamba system' influence conservation of Mt.Elgon forest. The research Design used is descriptive survey with a target population of 19,306 households in Mt. Elgon District. The sampling frame was used to determine sample size using systematic sampling technique with the Kth Unit being the 48th household with a sample size of 400 households which is a total Disproportionate samples drawn from the 6 sub locations in Mt.Elgon District. Data was collected using questionnaires and interview. Data was analyzed using descriptive statistics such as means and percentages.. Data was presented by use of frequency distribution tables. The fact that the findings may constitute important information, this can facilitate decision making regarding forest conservation and theory formulation.

CHAPTER ONE

INTRODUCTION

Background of the study

Forest Conservation is the maintenance of the world's tree cover in forest area. Forest area is defined as land under natural or planted stands of trees at least 5M SQ whether productive or not and excludes tree stands in agricultural productive systems (Fruit plantations and agro forestry system) and trees in urban parks and gardens (Kenya Forest Act 2013). Forests play a crucial role in the lives of the communities and various Nations, such as: Source for timber/Firewood, traditional herbs among Other Cultural importance. It is also important in: nutrient Cycling, Soil formation, oxygen production, home for wildlife, soil erosion barriers, and Water reservoir for other forms of diversity. Forest Conservation therefore employs various strategies to achieve its targets amid various societal, political and Cultural affiliations that are largely dependent on the forests. Historically, Conservation strategies has been dominated by attempts to fence off or reserve areas by excluding people from the reserved areas (Adams and Holme 2001), a model called fortress conservation. It involved creation of Parks, forest reserves, and prevention and exclusion of people as residents and minimize consumptive use (Brown, 2002).

Germany has a total forest area of 104,330 km² which is 29.2% of the total geographical area (STBA 1995). The forests of Germany are of cool temperate forests which can be grouped into: Broad leaved (beech) hill forests, Broadleaved (beech) Montane forests, Broadleaved (Oak) Forest, Riparian swamp forest, Dry temperate alpine forest and Subalpine (spruce) forest. The overall contribution of the broadleaved forests to the natural forests has been estimated 90% and the contribution of Coniferous Species being 10%. The

exploitation of the German forest is attributed to human activities especially from the middle ages when large areas of the natural forests had been exploited, converted to agricultural land and forest plantations. Though efforts to conserve the forest have been elusive, Sustainable forestry was developed in Germany. The uncontrolled (over)exploitation of the forests was counteracted by regulations whereby the term ‘sustainability’ made its way as a tenet in the management of the forests and encompassed other functions too like protection of the soils, watersheds and other forest resources. In Germany therefore, forestry includes Conservation Use Of nature and intergrading the conservation related objectives in the policy and forestry as a perfect way of forest management System. Despite above, it is reported that loss of biodiversity has largely been due to Conservation and fragmentation of large forested areas Caused by human Settlements, agriculture and industrial facilities (stBA 1995)

Madagascar ranks as one of the World’s top biodiversity Conservation priorities, owing to its high concentration of the endemic species and extreme levels of habitat loss. Madagascar endemics make 3.2% of the worlds’ plant species. Forest Fragmentation is a grave threat to the Islands’ diversity because the remaining patches of the forest are often too small to support viable populations (Ganzhorn, 2000)).The dry deciduous forests of the Western Madagascar, Such as Forest Kirindy Mite National Park, has been relatively ignored, despite estimates that over 97% of the forest type has been lost (WWF 2001).Primary catalysts for deforestation are Subsistence agriculture and Logging (Green and Sussman 1994).In addition, Forests and Savannah Face high danger from burning by villages to clear Land for

Agriculture or by nomadic tribes whose cattle need young grasses for grazing(Dollar,2006).An effective way to conserve the forests in Madagascar is by ending deforestation caused by poverty by providing people with agricultural techniques and involving them in ecotourism(Sussman,1994) In Mexico, conservation of the forests have been mainly done through the communities known as *Edijos*.As a search to Combine conservation and development in forested tropics, a number of projects to promote sustained yield forest managements with high degree of participation from local rural communities emerged during 1980's(Richards,1991).One of the internationally recognized initiatives has been that of *plan piloto forestal*(PPF) in Quintana Roo,Mexico in which *Edijos* were supported during transition from parastatal logging concessions to the implementation of their own Management and Harvesting plans. The PPF was based on the idea that the forest owners must be interested in Conservation of the forest for economic reasons i.e. that they receive from sustained Management. The principal aim of PPF was therefore to demonstrate that an economically viable form of forestry was possible.

Community Forest management is carried out in Democratic republic of Congo as a way to conserve the forests.CFM is defined as a way to involve people directly in Forestry (FAO, 2005). This basic Concept of Community participation is aimed at community life, which means to support the forest depended people to be able to carry out community forest activities on their own Capacity (Arnold, 1991).The community people should be able to have the local organizations to be able to build up the forestry institutions' capacity. The above decentralizes control and authority on forest operations (Katila

2008). The Challenge of CFM is that many of the Community members do not understand the operations of the above decentralization policy. Other challenges that manifest out of it is lack of Human resource Capacity and effective policy in place that clarify property rights arrangement (Forests Monitor, 2008)

Kenya is endowed with a wide range of ecosystems ranging from Montana rainforests, savannah woodlands, dry forests and coastal forests and mangroves. Forests are among the countries most important natural resources and their sustainable management comprises an integral part of Kenya's National development strategy (GOK, 2006). The major factor which justifies Conservation of Mt. Elgon forest is because it is a water reservoir for Lakes: Kyoga in Uganda, Turkana and Victoria. The total area of Mt. Elgon forest 10,243 hectares with natural forest occupying 8,012 hectares, plantation forests 2,133 hectares and bamboo forest 1072 hectares (GOK, 2005). The main user groups of the forest are; Cattle herders, on-residential cultivators, poll and firewood collectors, hunters among others. Timber, wildlife poaching charcoal burning alongside overgrazing are main vices to forest cover (Engage and Njuguna 1999). Forest reserves are mainly threatened by honey hunters and charcoal producers, illegal logging of valuable timber trees, damage by wildlife to plantation trees by debarking and trembling down small seedlings, illegal grazing of livestock, pests and diseases such as Cyprus aphid in plantations. Forest losses area also caused by excision and encroachment. (MEICDP, 1999). Community Forestry Management is the main tool that is currently employed to Conserve the forests through Community Conservation groups Such as CFA (Kenya Forest Act, 2005). Despite decentralization of the

forestry management, other concerted efforts to manage the forests have been employed by KFD through enforcement of law alongside its collaborative efforts with KWS. Though as observed, the user groups have increasingly engaged in illegal activities leading some parts of the forest in a dilapidated state.

1.1 Statement of the problem

Forest conservation is a key tool towards maintaining the forest Cover .Mt.Elgon forest reserve in Kenya which is Bungoma County's largest has undergone changes over the years due to encroachment by such human activities as: charcoal burning, logging, herding and illegal settlements. The FDA has tried to redress these challenges in various ways such as policy formulation and enforcement, creation of awareness, Decentralization/Community participation through formation of CFA in Kaberua and other regions so as to involve people in the conservation of the forest, but the fundamental causes of encroachment of the forest are not clear. It is against this ground that the study will focus on investigating factors influencing conservation of Mt.Elgon Forest.

1.2 Purpose of the study

The purpose of this study was to investigate factors influencing Forest conservation in Bungoma County. A case of Mt.Elgon forest, Kenya.

1.3 Research objectives

The following objectives were used to guide the study.

1. To determine how Decentralization of forest management practices influence conservation of Mt Elgon forest.
2. To determine the extent in which community participation influence conservation of Mt.Elgon forest.
3. To determine how awareness on forest conservation influence conservation of Mt.Elgon forest.
4. To establish how 'shamba system' influence conservation of Mt.Elgon forest.

1.4 Research questions

The study sought to answer the following questions:

1. To what extent does decentralization of forest management practices influence conservation of Mt.Elgon forest?
2. How does community participation influence conservation of Mt.Elgon Forest?
3. To what extent does awareness on forest conservation influence conservation of Mt Elgon forest?
4. How does 'shamba system' influence conservation of Mt.Elgon forest?

1.5 Significance of the study

The study is significant in various ways:

The Ministry of forestry and Natural resources may use this study finding to be able to find out the causal factors that works against conservation of the forest. Alongside that, the Ministry through KFD shall be able to strengthen

the CFA through formulation of a proper working structure and policy to ensure proper community participation in Conservation of the Forest alongside carrying out civic education on the relevance of conserving the forest.

The Government of Kenya may use the research findings to make substantive budgetary allocation geared towards forest conservation alongside partnering with bilateral and multilateral organization like World Bank and IMF to support the forest conservation programs in the country. The GOK may use the findings also to shape up the curriculum on environmental conservation in light with the conditions of our forests. This shall result into skilled practitioners on forest conservation.

The NGO'S dealing with the forest conservation may use the findings to engage in activities geared towards enforcing the conservation policy alongside carrying out further Civic education.

To the researchers, these findings shall aid them in Carrying out further research on forest conservation. In addition to, the researchers shall further their knowledge on the nature of our forests alongside the conservation programs.

1.6 Limitations

This research was carried out in Mt.Elgon District whose geography is rugged and the nature of the land topography makes other areas inaccessible. The social-economic culture and subsequent notion of the forest being a hide out of the militia groups such as: SLDF makes the area unique from other Districts in Kenya. This makes the researcher to caution that the research findings were cautiously generalized

Secondly, the factors that are being investigated as per the objectives such as: Decentralization Management practices, community participation, awareness on forest conservation and 'shamba system' are only handful causal factors influencing conservation of Mt.Elgon Forest. Others may include: the medicinal value of the trees, poverty, Cultural practices and other illicit agricultural practices that have not been included in the study.

1.7 Delimitation of the study

This study was only undertaken in 6 Sub-Location in the respective Locations totaling to 6 in Mt.Elgon District. The reasons for the above are as follows: The Areas borders the forest and human activities have adverse impacts on the forest than other areas that are away from the forest, Secondly, there are other activities such as 'Shamba system' do exist in Kamuneru and Kaboywo.CFA have been formed in Kaberua ;activities which influence forest conservation .This is not to mean these are the only factors that influence conservation of the forest ,there could be other factors in other locations which could adversely affect the study findings.

1.9 Assumptions of the study

It is assumed that, the factors that influence conservation of Mt.Elgon Forest are the ones stated in the objectives. Other factors are treated minor and may have negligible influence in conservation of forests. Therefore, the findings of the study, conclusions and recommendations were pegged on the factors of the study.

1.10 Definition of significant terms

These section consist of in the “context meaning “of various terms used in the study

Awareness The State or level of
Consciousness and the state of being
aware of forest Conservation

Bi lateral and multilateral organization These are development agencies
that Partner in Development

Community Residents of Mt.Elgon District

Community Forest associations It refers to legally registered
community groups that manage
forest resources of the Community
in partner with govt

Community participation
Involvement of the people in the
aspects of forest conservation

Decentralization of forest Management Management strategies such as:

Practices Delegation, devolution and CFM

Dilapidated Destroyed

Edijos Local communities of Mexico

Education	Imparting skills, knowledge, attitude on forestry.
Environmental conservation	Refers basically to conservation of Forests
Factors that influence conservation	Factors that shapes the forest state
Forest conservation	Achievement of full forest covers
Forest conservation policy	It refers to the general policy of Conserving then forest
Forest encroachment	Refers to illicit practices done in Forest gazette area
Ignorance	Refers to doing without Understanding
Non timber products	Resources extracted from the forest Other than timber or wood
Plan piloto forestal	French word meaning initiatives and Plans of conserving the forests
Poverty	Inability to meet your daily needs
Research	Systematic and scientific

	Investigation of the
	Underlying problems that influence
	the Forest Conservation
Shamba system	Agro forestry model of cultivation in
	the Forest gazette area
	Practicing reforestation, planting
	Personal crops and taming tender tree
	Seedlings
S.L.D.F Militia	Informal banditry group that fights for
	Land rights
Typology	Systematic Classification of the types of
	Participation

1.11 Organization of the study

The study consists of Five Chapters. Chapter One of the Introduction has sub-headings; Background of the study, statement of the problem, purpose of the study, Research objectives, Research questions, Research hypothesis, significance of the study, limitations, delimitations, assumptions of study,

definition of significant terms and the organization of the study. Chapter two is Literature review that starts with introduction then followed by the definition of the term forest Conservation. Next is, subheadings as per the objectives of the study. A theoretical and conceptual Framework is at the end followed by summary of the review and research gaps. Chapter three is composed of: research design, target population, sampling procedure and sample size, research instruments, piloting, data collection procedure and analysis and operationalization of study variables. Chapter Four has: Data analysis, interpretation and presentation of study findings. Chapter Five has: summary, Discussions, conclusions and recommendation of the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This section consists of review of related literature. This section contains:

Introduction, Concept of Forest Conservation, Influence of Decentralization of Management practices in Conservation of Mt.Elgon Forest, Influence of community participation in conservation of Mt.Elgon Forest, Influence of awareness on conservation of Mt.Elgon Forest, Influence of ‘shamba system’ in conservation of Mt.Elgon Forest, Conceptual Framework, Theoretical Framework, Summary of the Review and Literature gaps.

2.2 Forest conservation

This refers to maintenance of the tree cover in gazette areas so as to achieve the global cover of 10% cover, (FAO, 2010). The current state of forest conservation globally is as shown below:

Table 2.1: Forest Cover in East Africa and the rest of the world

Countries	Forested area	Annual Change rate (2005-2010)
Global World	31%	-0.14
Sweden	69%	-0.50
Africa	23%	-1.16
Tanzania	38%	-1.16
Rwanda	18%	-0.31
Uganda	15%	-2.72

Source: FAO 2010

As per Kenyan Forest Policy, the state of forest cover has to be improved and maintained to meet the constitutional requirement of 10 %. Forest policy provides a framework for improved forest governance, resource allocation, partnerships and collaborations with state and non state actors to enable the sector contribute in meeting the countries growth and poverty alleviation goals within a sustainable environment. (Forest policy, 2014). The current forest policy has the following objectives: Increase and maintain tree/ forest cover of at least ten percent of Kenyan Land, Establish an enabling legislative and institutional framework for the development of the forest sector, support forestry research, Education, training, information generation and dissemination, and technology transfer for sustainable development, Promote investment in commercial tree growing, forest industry, and trade, Enhance management of forest resources for conservation of soil, water biodiversity and environmental stability. Weak legislation is one of the causes of low Forest cover in East Africa (FAO, 2005). In Kenya, laws concerning forests are numerous, ranging from: Kenya Forest acts to Kenya wildlife acts that are enforced by Kenya forest Department and Kenya Wildlife service that have not been able to enforce the laws to the latter while the aspects of forest depletion are on escalation.

Forest conservation in Kenya began when Kenya was declared a British protectorate in 1895. The Key objective of conserving the forest through demarcation was to protect forests from destruction indigenous land use

practices, to prevent European settlers from obtaining private ownership, and to generate revenue for the forest department through the sale of timber and minor forest products. Prior to 1895, forests were managed by indigenous communities by using their own set rules and regulations and many of their systems comprised of sacred groves and religious taboos as a form of protection, for example among a kikuyu (Castoo, 1988) and Luhya(Ongugo and Mwangi,1996)

2.3 Influence of Decentralization of forest Management practices on conservation of Mt.Elgon Forest

There are various Management Approaches that are used to conserve the forests. One is Centralized Management (Command and Control), where State agencies assume a leading role through Various government Departments and Ministries. Secondly, Decentralized Management, where local communities are involved at varying Levels .Third, Private Management where private entities own and Manage the resources and lastly,Co-Management,where the state, local Communities, and other actors share Management functions, rights and responsibilities(Dick,Mburu,and Binner,2007).

Based on traditional use pattern of forest patch, the state devolves forest management rights (and not ownership) to local community, commonly known as the community forest user group (CFUG). By granting CFUGs the rights to protect, manage and use the forest and its products, the program aims to nurture deliberative democratic platform and enhance CFUGs'access and influence in decision-making processes (Banjade and Ojha, 2005).In a particular forest, decentralization is aimed at enhancing peoples livelihoods, poverty alleviation and preservation of forest condition. In Kenya,

decentralization is mainly implemented through CFA driven by expectation beyond what legislation provided (Ongugo, 2007).

Decentralizing takes different forms: Decentralization delegation, devolution, and privatization (Meinzen-Dick and Knox 2001). Many governments have made efforts at decentralizing mainly due to pressure from donors, GO and local politics (Agrawal and Ribot 1999). For instance, the forest Act of 2005 dictates that the community forest Associations (CFA) shall enter into an agreement with KFS to assist in safeguarding the forest resources through protection and conservation activities (GOK 2007). In Exchange, they are expected to receive timber or non timber forest products (NTFP) as well as Revenue from Community Based Industries, ecotourism and recreation, scientific and educational activities. The decentralization aspect is expected to enhance, biodiversity conservation, the equitable distribution of benefits, conflict resolution, poverty reduction, and sustainable Use (Killert 2000)

In Kenya, Forest decentralization seems mixed, in the implementation process, the contribution of the communities is limited to protection and Monitoring. There is limited access to the shared forest revenues accrued from the forest resources. The communities are burdened with most of the work with little benefits from the forest. The KFS and KWS who are the main Government agencies of the forests are reluctant to decentralize the authority to the communities. The revenue currently collected from permits of Grazing, leasing land and firewood does not benefit the communities and large Companies of Millers still dominate timber harvesting.

2.4 Influence of community participation on conservation of Mt. Elgon Forest

Sustainable forest development will not be achieved if it fails to consider the needs and aspirations of the rural and forest dependent communities and to acknowledge and deal in appropriate and timely way, with the conflicting situations created by competition for the use of the Forest resources (Desloges, 1998). The process and the concept of participation was introduced in development Discourse in the 1950's and formed one of the key elements in creating an alternative development later in 1970's, enabling the grass root population to regenerate their life spaces, Rahema (1992). Rahema, (1992), points out that that participation is a broader movement that entails increased involvement of the local people at all stages of decision making on issues that affect life and the development process.

Community participation has a connection with conscious involvement in the types of actions and duties that have been taken and the degree of responsibility (Kiamba, 1992:3). Basically, it can be understood based on the involvement of the people in :planning and other government processes with a view of increasing trust and confidence in the Governance so that people can accept and plans made by the government for them to solve their problems (Midgley, 1986:13-44). Johnson, (1995), identifies three possible options for management of common property resources, particularly forests. These are: participatory Forest management (PFM), Community Forest Management (CFM) and Joint Forest Management (JFM)

PFM is where the government takes initiatives, manages the resource and the community participates in various forms most commonly as hired labour. In

his study, Johnson explains CFM as the state where the communities take the lead in managing the resource while the government is a passive supporter or simply an observer. Lastly he explains JFM as the state where the owner (state) as well as the user (Community) manages the resource and share costs as well as benefits.

In management of the forests, participatory approach is limited (Fairhead and Leach, 2003). This is because of the most powerful and the vocal who do not even find them easier to deal with. (Fairhead and Leach, 2003). It may even result in usurping control of forest resources from the people who need it most. (Savin 1998)

(Ramutsindela, 2004) questions the issue of benefits to communities, particularly those who are displaced from forest reserves. He wonders whether different stakeholders in relation to community participation are in agreement on what constitute “benefits”

Pretty (1997) outlines seven different categories of participation based on the degree of involvement of the people, as shown in the table below:

Table 2.2: typology of participation

TYPOLOGY	CHARACTERISTICS
1. Manipulative Participation	Participation is simply by pretence
2. Passive Participation	People participate by being told what has been Decided Or has already happened, information being

shared to professionals

- 3. Participation by consultation** People participate by being consulted or answering Questions The process does not concede any share in decision-making and professionals are under no obligation to take on board peoples views
- 4. Participation for incentives** People participate in return for food, cash or any other material incentives. Local people have no Stake in prolonging technologies or practices after The end of incentives
- 5. Functional participation** Participation seen by external agencies as useful To achieve project goals, especially reduced costs. People participate by forming groups to meet The predetermined Objectives of related project goals
- 6. Interactive participation** Participation by joint analysis, development of action plans, forming or strengthening of local groups and Institutions. The learning methodologies

Seek multiple Perspectives. Groups determine

Available resources are used

7. Self Mobilization

Participation by taking initiatives independent

of External Institutions to change systems

. They develop contacts with

External institutions for resources and

Technological advice

Source: Pretty 1997

Most communities prefer: Interactive participation and self mobilization.

Authorities are comfortable with participation by consultation, participation for incentives and Functional participation with the ultimate goal to cut short the costs. In Kenya, while the Forest Policy (2014) is clear about the need of community participation through CFA, Such groups may not fully represent the needs of the people and they are treated as junior partners in forest conservation policy. In Kenya, all protected areas belong to the state and the local communities and indigenous people (IIN, 2008). These is in reverse as many are excluded in formulation and implementation of the forest conservation policy.

The poor conservation outcomes that followed decades of intrusive resource management strategies and planned development have forced policy makers and scholars to reconsider the role of community in resource use and conservation. In a break from previous work on development which

considered communities to hinder progressive social change, current writing champions the role of community in bringing about decentralization, meaningful participation, cultural autonomy, and conservation (Chambers and McBeth 1992; Chitere, 1994; Etzioni, 1996). But despite its recent popularity, the concept of community rarely receives the attention or analysis it needs from those concerned with resource use and management.

Most of the current ideas about the community's role in conservation have changed radically: communities are now the locus of conservationist thinking. International agencies such as the World Bank, IDRC, SIDA, CIDA, and Worldwide Fund for Nature, Conservation International, The Nature Conservancy, The Ford Foundation, The MacArthur Foundation, and USAID have all "found" community. They direct enormous sums of money and effort towards community-based conservation and resource management programs and policies (Arnold, J. E. M. 1990). A host of other more specific factors have aided advocates of community-based conservation. The past several decades of planned development and top-down conservation practices have made one fact amply clear: the capacity of states to coerce their citizens into unpopular development and conservation programs is limited. These limits are seen starkly when state actors attempt to discipline resource users. Where resources such as fodder, fuel wood, fish and wildlife are intrinsic to everyday livelihood and household budgets, even well-funded coercive conservation generally fails. Faulty design, inefficient implementation and corrupt organizations have played an equally important role in the poor outcomes associated with state-centered policies. Combined with local intransigence and lack of livelihood alternatives, this mix of factors has pushed most enforced

conservation projects into spectacular failures (Bates 1989; Ropetto and Gillis, 1988). In their review of 23 conservation and development programs, Wells and Brandon,(1992) argue that the weaknesses of state-centric policy means few options other than community-based conservation exist.

Contextual factors have also focused the attention of conservationists on community. With the spread of democratic political structures and the increasing insistence on participation, unrepresentative development and conservation projects have become as unattractive as they are impractical. The increasing prominence of indigenous and ethnic claims about the stewardship role of native populations in relation to nature assists those who advocate a central role for community (Clay, 1988; Redford and Mansour, 1996). In addition, nongovernment organizations (NGOs) at different political levels have helped to amplify the voices of local, indigenous, and community groups (Borda, 1985). As new revisionist ecological research began, questioning of two other main planks of coercive conservation began and the recognition of the limits of the state and the emphasis on popular participation has come roughly at the same time. The first was that pristine environments untouched by human hands existed until the very recent past. The second was the belief that indigenous and other local communities had been relatively isolated in the past (and therefore used their resources sustainably). (Redford, 1990). Above perceptions are geared towards limiting human activities in the forest or natural resources for the purpose of conservation. In Mt.Elgon forest above has been ensured through aspects of involving the community members in conservation of the forests, gazetment of the forest, policy formulation and enforcement alongside coordination of various factors such as KFD and

2.5 Influence of Awareness on conservation of Mt Elgon forest

UN declared 2005 to 2014 the decade of Education for sustainable

development; the overall goal being to utilize education as means of intergrading the principle of sustainable development with human values and perspectives in order to create a sustainable society. Above targeted to enable the human society to sustainably utilize the natural resources for the future generations. Above targeted to inculcate reflex and self directed activities to enable human being have passion in conservation of the Environment. This means that human beings should be in a position to adequately use the resources and conserve forests without a close supervision of the forest guards. Taming natural habitat becomes a collective responsibility. (UNESCO, 2005)

However, Education is often viewed as an unalloyed good and, consequently there have been few empirical studies on costs and benefits of different forms of education within the field of forest conservation. Education in relation to aspects of conservation relates to systematic training and instructions designed to impart knowledge and skill concerning conservation; effectively, both the ability in acquisition of knowledge and ability to evaluate that knowledge. However Environmental Education, first defined by the world conservation union , includes the element of behavior; the idea that through knowledge, changes in personal, societal and global level will occur (IUCN, 1970). Education on Conservation makes sure that adequate skills and knowledge on conservation imparts a complete change in knowledge and attitude on conservation. However, there are other causal factors that may compromise the imparted knowledge, skills and attitude; the conduct of the law enforcers that may sometimes apply there laws selectively As seen from

above , the literacy levels may impact on forest conservation in the sense that when ignorance prevails among the members of the community, what takes a centre stage is the traditional stereotypes and up hazard thinking like the regard of burning forests to bring rainfall and viewing the forest cover as a wasted land.

The aims of environmental, forest and or conservation Education are: To provide learners with opportunity to gain awareness or sensitivity to the environment, To gain Knowledge and experience of the problems surrounding the environment, to acquire set values and positive attitudes, to obtain skills needed to identify and solve environmental problems and the motivation and the ability to participate (Jacobson, 2006).The following aims have not been achieved largely in Kenya and mores specifically in Mt .Elgon region where aspects of attitude has been a setback on forest conservation. This is constructed based on the behaviors of the forest guards, lack of proper policy framework and inadequate citizen participation. Agenda 21,drawn from Rio Earth Summit 1992 recognizes the aspects of Education, awareness and training as a process by which human beings and societies can reach their fullest potential(UNESCO,1992).The level of people's awareness on the forest policies regarding issuance of grazing permits or any other permits to exploit the forest resources have not been adhered to. There is also existence of settlements in gazette areas; Practices that have compromised forest conservation and achievement of the global goal of achieving 10% of forest cover.

Studies attempting to quantify the effect of formal education on forest conservation are limited but on the whole, they agree that it has a beneficial

effect (Alix.G., 2007). Many of the existing curriculums in the world does not bear in mind the aspect of environmental Education. The Kenyan curriculum does not offer the education systems that aim at conservation of the forest. The Environmental Education in Kenya is provided for at higher levels learning; at University and college level. At the community level, Conservation of forests have been left to some specific groups in the society such as: the clergy, Nonpoliticians who have repeatedly misconceptualized forest conservation as an opportunity to access Funding From donors. This emphasizes the need of conservation learning programmes in our institution

2.6 Influence of 'shamba system' on conservation of Mt.Elgon Forest

'Shamba system' is an agro forestry model that involves farmers tending the tree saplings on state owned forest in return of being permitted to intercrop perennial food crops until canopy Closure, (Forest Act 2005). Agro forestry is a deliberate integration ,in space or time ,of woody perennials with herbaceous crops and animals on the same land management unit (Nair 1985) or sustainable land management system which increases the yields of the land by combining the production crops(including tree crops) and forest plants and or animals simultaneously or sequentially in the same unit of land and applies management practices that are compatible with the cultural practices of the local population(Bene ,1977;King and Chandler,1978). The terms used to describe the system varies enormously: In German speaking countries it is known as *Baumfeldwirtschaft* , or *wald feldbau*. Francophone countries refer as cultures *sylvicole et agricole combine*, *culture intercalates*, *la mithodeslvo agricole*, *lasystime sybo-bananier*, and *plantation sur culture*. Dutch name is *Rosakkerbouw*. In pueto Rico, it is called the *parcelersystem*, and in

Brazil, *Consoiciacao*. The name in Lybia is *tahmil*. In the Philippines is called *Kaingining*, in Tanzania is *Licensed cultivators system* and in Kenya, it is called the *shamba system*.

By the end of 19th century, the establishment of forest plantations had become a dominant objective wherever agro forestry was being utilized as a system of land management. This change of emphasis was not at first deliberate, it began fortuitously enough in a far-flung outpost of the British Empire. In 1806, U Pan Hle, a Karen in Tonze forest of Tharrawady Division in Burma established a plantation of Teak through what he called "Tungya" method and presented it to Sir Dietrich Brandis (Bransford, 1958). Brandis is alleged to have prophesized that "if the people can ever be brought to do it, it is likely to become the most efficient way of planting teak (Bransford, 1958). The practice became more widespread, it was introduced to South Africa as early as 1887 (Hailey 1957) and was taken from Burma to the Chittagong area in India in 1890 and to Bengal in 1896 (Raghavan 1960). In the second decade of the 20th century, the system became more and more popularly with foresters as an inexpensive method of establishing the forests, and as Shebbearre, (1932) puts it, it became a full rising flood. In 1960, and early 1970, there was increasing concern for forested lands of the tropics (Eckholm, 1976). Bene, (1977), recognized that the solution to the problems besetting the tropical forests arose from population pressure exerted through the need to produce food and fuel wood. Key issues lie on the interface of forestry and agriculture, (Bene et al 1977), the rising populations of humans and animals, with their expanding food, fodder and feed needs, exerts great pressure on the stabilizing elements of agroforestry. As productive land becomes scarce,

marginalized farmers are pushed into fragile crop lands and forest areas unsuitable for modern agriculture. If present trend of population growth persists among the communities that border the forest, forest resources and pasture lands will be further suffer from human interference.

Sustainable food security has been a major human goal. Food security is physical and economic access to food for all the people at all times (FAO, 2005). The issue of concern to many scientist and economic planners globally has been increasing the pace of food production to keep pace with unabated population growth in tropics and subtropics(Brown and Jacobson,1986).Although most countries of the world are still in a process of demographic transition, the final stage of the transition is lagging behind dangerously in Africa, Indian Sub-Continent ,Latin America, the Middle East ,and South East Asia(Brown and Jacobson 1986).The carrying capacity of lands in many developing countries is already overstretched .Recent study by FAO ,54 of 117 developing countries did not have sufficient land resources to meet the food needs of their 1975 populations at low levels of input use(Higgiris et al 1983).It is obvious that the maintenance of the tree cover is of outmost importance of the ecological and economic sustainability of food production systems.Agroforestry involving cultivation of intergraded woody perennials, crops and animals is one answer to quandary (Nair 1985).A typical agro forestry allows symbiotic economic and ecological interactions between woody and non woody components to: Increase, sustain and to diversify the general land output with some of the dominant agro forestry systems being :Shifting cultivation,Taungya a forestation, home garden,silvopast,Agrisilvicultural,windbreaks and Live fences(Nair 1985).

A report of the African Conservation Foundation, though mild in its own assessment of the deleterious effects of the shamba system on natural forest cover, nonetheless captures, non-commit ally, the essential and powerful evidence against the shamba system:"The shamba system failed in some places because the Forestry Department had no staff to supervise the protection of the young plantations after retrenching most of the forest guards and phasing out the cadre of staff referred to during the colonial era as patrol men(Yombo,2009)

Yombo,(2009) points out that, by late 1980s, conservationists had started raising the red flag on the system's failure as signs that the scheme was being mismanaged and abused begun to emerge.

Kenya Wildlife Service (KWS) was the first government organization to criticise the system following its restoration by Presidential Decree in 1993 with claims that 19 per cent of natural forests had been encroached upon by the shamba system. For instance, KWS argued that the shamba owners had secretly extended their boundaries to the Naro Moru Gate of Mt Kenya National Park, and that the remaining forests were being subjected to extreme pressure from squatters, who were felling more trees, and burning indigenous forest areas for cultivation (Yombo, 2009).

2.7Theoretical framework

These study was based on Nature Culture theory propounded by (Catree 2001).This theory tries to establish the relationship that exists between society and nature. In his explanation, he views nature to be distinct from what is human or cultural and therefore, Certain areas treated as ‘wilderness’ areas be

set aside in order to protect them from human influence. Therefore there is need to exclusively or restrict humans from protected areas like the forests.

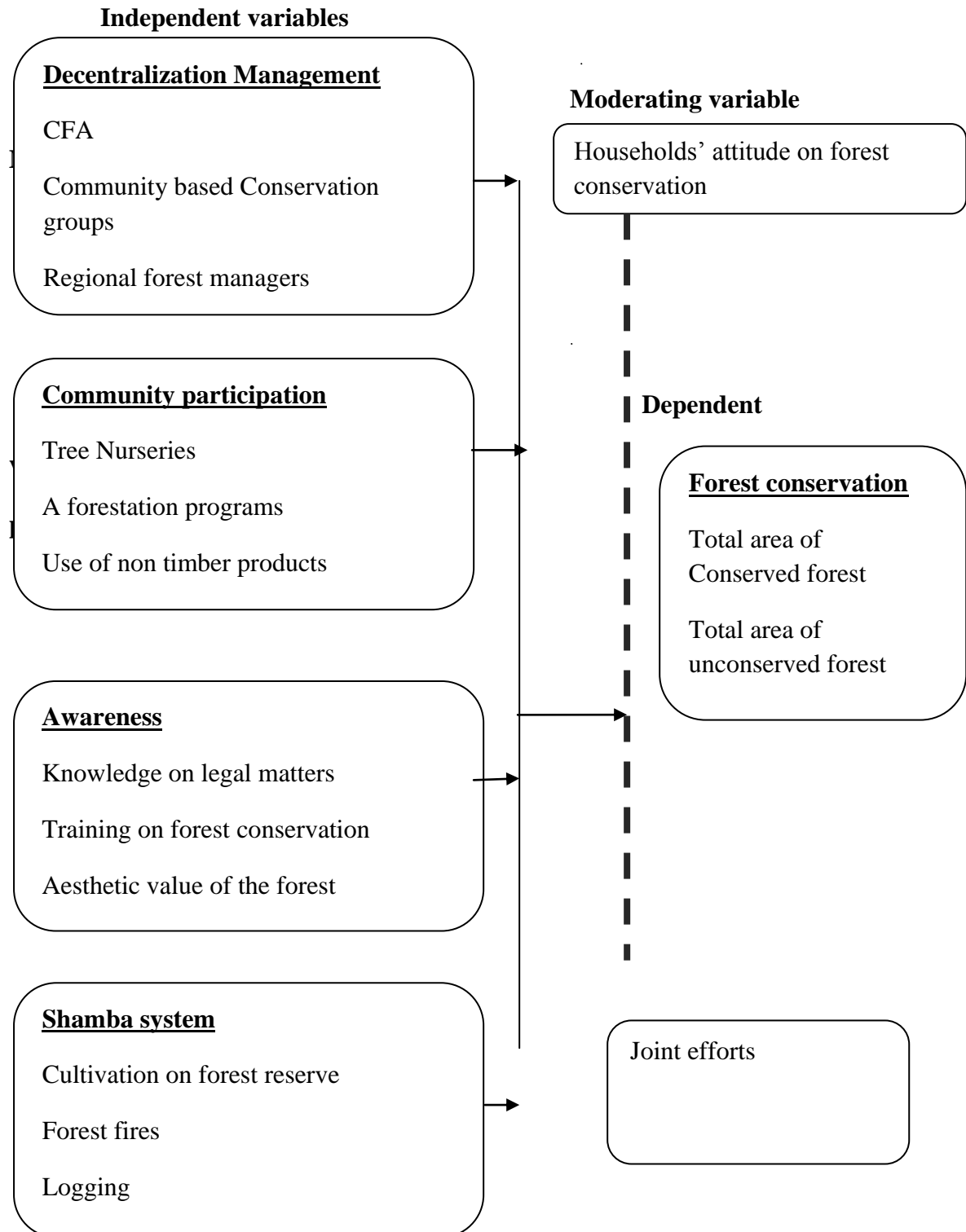
When people are left in nature, they are regarded as key or integral components of nature and their activities are mere natural processes that have existed with nature. The theory justifies the element of mutual existence between man and his nature keeping in mind the sustainability aspects of the natural resource, through limitation of human activity.

Practically in Kenya, there exist protected areas; forests included. These areas have been gazzeted limited from human activity. Such areas have legal ramifications such as: Forest Acts anchored on Chapter Five of Kenya Constitution 2010 on Land and Environment.(Kenya Constitution,2010).Other relevant institutions like Forest Departments, Ministry of Forestry, and NEMA are in existence to implement the forest conservation policy.

This theory is merited by the following aspects: It clearly defines the relationship between the community and the nature in line with the forests which needs to be protected apart from it offering aesthetic value to human wants. The theory also explains the role of the community in line with forest conservation. The limitation of above theory is that its practical application it is only limited to planted forests than to indigenious forest cover funneled from human activities..

2.8 Conceptual Framework

Figure 2.1: conceptual Framework of Factors that influence forest conservation



In this study, the conceptual framework has been constructed with the

Independent variables to include: First, Decentralized forest management

practices, which seeks to establish on how Community Forest Management practices have been implemented and its effects in relation to forest conservation. The indicators for the above are the presence of CFA which manage the forests on behalf of the government and the community. This is seen as an intermediary between the Government and the people.

Conservation groups also do exist and actively participate in taming young seedlings and sell them to the KFD. To this particular group, Forestry is an income generating activity while regional managers supervises enforces forest policies at the local level. Secondly, community participation is an independent variable that asses the level of community participation in compliance with forest Conservation. In examining community participation, observation is made in regard to the tree nurseries, Aforestration programs and Use of non timber products. Third, level of awareness on forest conservation in line with knowledge on legal matters of forest conservation. Lack of such awareness on the value of the forest leads to establishment of settlements in gazette areas and burning of the forests. Another aspect is training on conservation which is mainly undertaken by KFD and other Community organizations prompt the onset of rains. Lastly, practice in of 'shamba system'

Secondly, in practice of 'shamba system', there is increased human activity in forest gazette as a result of Agricultural practices resulting into reduced forest cover, forest fires and logging. Independent variable is conservation that has not been achieved as a result of the factors in the I.V. The intervening variable is joint efforts among the various actors of conservation who include: KFD, KWS, GOK, NGO'S ,Bi lateral and Multilateral organizations and the community in the aspects of forest conservation. Lastly, The moderating

variable is households attitude on forest conservation. This means that positive attitude of the people of Mt.Elgon has to be inculcated by various agencies that deal with forest conservation. The Development of the negative attitude is as a result of brutality of the forest officials who deal ruthlessly with the locals in case they contravene the law.

2.9 Summary of the review

This Chapter has particularly dealt with review of Related Literature. It begins with the part of introduction whereby it introduces all the themes which include: Concept of Forest Conservation, Influence of Decentralization of forest Management practices on Conservation of Mt.Elgon Forest, Influence of community participation on conservation of Mt.Elgon Forest, Influence of Level awareness on conservation of Mt.Elgon Forest, Influence of ‘shamba system’ on conservation of Mt.Elgon Forest, Theoretical Framework and Conceptual Framework.

The review has dealt with the underlying factors that influence conservation of Mt.Elgon Forest as per the study objectives in the global perspective and within. In review of the literature some fundamental aspects that influence conservation of the forests have been unearthed which include peoples attitude and cultural believes and values.

2.10 Research gaps

There are few known researches that have been done on the factors that influence conservation of Forests in Africa. Many of the research done as per the review of the literature have largely dwelled on the forests in Europe perceived to be developed. The Economic upheavals that impacts negatively to the forest cover are minimal in such countries.

Many of studies have not explored on the aspect of high level of ignorance and environmental education as a basis of forest depletion. Therefore, more research is needed as a basis to impart environmental Education and management

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology used to carry out the study. The chapter presents research design, target population, sampling procedures and sample size, research instruments, reliability, and validity of the instruments, data collection procedures and data analysis.

3.2 Research Design

Descriptive survey research Design was used in this study. Orodho, (2005), states that in Survey, data is collected by interviewing and administering questionnaires to sampled individuals with an aim of studying their attitudes, opinion and habits. Therefore, questionnaires were administered to sampled population of households in the selected locations. The questionnaires were administered in person and by the help of the CFA Officials. The reason for the use of the questionnaire is because it provides a reliable data based on the specific areas outlined in the questionnaire, and for easy analysis and interpretation of the data

3.3 Target population

The study targeted peasant farmer's population in 6 sub-Locations in Mt.Elgon District. with target population of 19,306 households .

Table 3.1 Disproportionate samples drawn from the Su-locations that borders the forest

LOCATION	SUB-LOCATION	MALE	FEMALE	TTL	SAMPLES
KAMUNERU	KAMUNERU	1513	1507	3020	62
KAPSOKWONY	BUGAA	985	998	1983	41
KABOYWO	KABOYWO	2107	2035	4142	86
KONGIT	KONGIT	2398	2416	4814	100
ELGON	KIBUK	1771	1844	3615	75
NOMORIO	KIPYETO	922	810	1732	36
TOTALS		9696	9610	19,306	400

Source: GOK Kenya: Mt Elgon District Census report, (2009)

The reason for the use of the target population was because the household members from the selected Sub-locations border the forest and that the household's activities have a direct impact to the forest unlike the households that are far away from the forest. Another reason is that 'shamba system' is practiced in Kamuneru and Kaboywo and CFA in Kaberua which are the major components as far as forest conservation is concerned. The respondents were visited in respective homes and the doors labeled to avoid the repeat. The CFA Officials were interviewed in DIDC hall in Kapsokwony upon the request of the researcher while the Forester was interviewed in his office. This

was majorly done in the afternoons since the community is an agricultural community who are engaged in farming during morning hours.

3.4 Sampling procedures and sample size

Systematic sampling was used. It involved selecting a sample unit randomly and selecting Kth element systematically. The Kth unit was calculated as 48th household in every Sub-location calculated as:

$$K=N/n$$

Where $K=k^{\text{th}}$ Unit

N =Target population

n =sample size

Source: Orodho, (2005)

In the footpath transect, the researcher picked the elements randomly skipping 47 elements and picking the 48th. In case the 48th element was below 18 years of age, the next respondent was considered.

3.5 Research instruments

Data was collected using the structured closed ended Mt.Elgon forest conservation questionnaire and interview schedule. They were validated by colleagues and Lecturers in the University of Nairobi who are knowledgeable and experienced in Research methodology and techniques of developing the research instruments. The Questionnaires was made simpler by myriad corrections to suit the study. The questionnaires were used because they are cheap to administer with the only cost being printing. The Questionnaires had two sections: Section One was on the general instructions to the respondent

and section two comprised of the items aimed at assessing the factors influencing forest conservation of Mt.Elgon Forest, Kenya.

Interview schedule was arranged with the station Forester. The Schedule aimed to give more information on the issues that the questionnaire would not unearth. The importance of the interview was that it gave the respondent a free space to relay the necessary information that was un predetermined as opposed to the questionnaire

3.5.1 Validity

It is prior qualitative procedural test of the research instruments trying to ascertain how they are accurate, true, meaningful and right in eliciting the intended data for the study, (Orodho, 2005).The validity of the instruments were determined by the colleagues and experienced research experts in the University of Nairobi (UON). Necessary corrections and advice were made on the areas identified as insufficient and new ideas incorporated in the instruments thus improving the instrument validity.

3.5.2 Reliability

Reliability of an instrument is the measure of the degree of which the instruments yield data after repeated trials, (Mugenda and Mugenda, 2003)

A pretest was conducted twice in an interval of two weeks among 30 households in Kipyeto Sub location by administering questionnaires and conducting interviews. The households used in the pretest were excluded in the final sample.

The results of the first data were denoted as X1 and the second data Y1. A correlation coefficient was calculated using the Pearson product moment correlation coefficient using a formula:

$$r = \frac{n \sum xy - (\sum x)(\sum y)}{\sqrt{n(\sum x^2) - (\sum x)^2} \sqrt{n(\sum y^2) - (\sum y)^2}}$$

Source: Kasomo, (2006)

If the values of r (correlation coefficient) was 0.8 which lies between -1 and +1 then they indicate

Perfect relationship (Kasomo, 2006). Therefore, the extent of reliability was determined by numerical values using the above Formula measured by the aspect of a perfect relationship correlation coefficient lying between -1 and +1.

3.5.3 Piloting

This was conducted twice in an interval of two weeks among 30 households in Kipyeto Sub location by administering questionnaires and conducting interviews. The households used in the pretest were excluded in the final sample. Correlation Coefficient for the results were calculated.

3.6 Data collection procedure

The research authorization permit for this research was sought from National Commission for science, Technology and innovation. The copy of the same was taken to the DCC Mt. Elgon District and some other copies to the area chiefs that the study aimed at. A pre visit was conducted to 'Shamba System' farms in Kamuneru and Kaberua plantation forest to conform to the research area and to familiarize with the respondents before the actual data collection. Questionnaires were then administered in person and by the help of

Some CFA Officials. A visit was made to the Forester's Office upon his Consent made through a telephone conversation for the purpose of interview .Enough time was given to the respondents for appropriate answers.

3.7 Data analysis Techniques

All the received questionnaires were collated before the analysis. Responses were Coded and entered into SPSS spread sheet to facilitate creation of statistics. Descriptive statistics was used to analyze the qualitative and the quantitative data like: frequencies, tables, distributions, percentages, mean and standard deviation. SPSS system was used to generate the frequency counts from the responses so as to prepare the distributions' frequencies. The percentages in the 5 point rating likert rating scale and responses of the interview from the sample responses were calculated out of the total population. Averages were calculated in respective items and the standard deviation was calculated for each research question to determine the consistency and variability of the response. The analyzed data was presented inform of: Frequency distribution tables.

3.8 Ethical considerations

Participants were assured of the confidentiality of the information they gave so as not to endanger their lives or to avoid any element of victimization. The questionnaires did not bear any space for the respondents to indicate their names. Questions that would evoke negative emotions were avoided since the people of Mt.Elgon have had a negative encounter with the SLDF civil strife. Research authorization permit was processed through the National Commission for science, Technology and innovation .The copy of the same was presented before the DC C of Mt.Elgon District. The researcher retained

another copy so as to be able to be identified incase required to do so. To build a cordial relationship with the respondents, a pre visit WAS done to visit peasant farmers practicing ‘shamba system’ in Kaboywo and Kamuneru alongside KFD office in Kaberua. The CFA officials were requested to assist in dissemination of the questionnaires upon clearly indicating that the information is voluntary and were to be used for no other purpose rather than for the research. The respondents’ consent were seeked on whether they were willing to take part in the exercise before administering questionnaires

3.9 Operationalization of the study

Questionnaire shown in appendix II shall be used to collect the data and the operationilization of the study shall be based on objectives: To establish the: Influence of poverty on adoption of forest conservation policy, influence of community participation on adoption of Forest conservation policy, influence of cultural beliefs on adoption of forest conservation policy and, influence of ‘shamba system ‘on adoption of forest conservation policy

Table 3.2: Methodology/operationalization matrix

Objectives	Variables		Indicators	Measurements	Scale level	Tools of analysis
	independe	Dependent				
To determine How Decentralized Management practices influence conservation of Mt.Elgon forest .	Decentralized Management practices	forest conservation	CFA Community based Conservation Groups	CFA Community based Conservation groups	Nominal Ordianal	Descriptive Statistics,frequencytables, percentages, mean,standard deviation
To determine the extent in which community participation influence conservation of Mt.Elgon forest	Community participation	Forest conservation	Tree Nurseries, Reafostation programs Use of non-timber products	Tree Nurseries, A forestation programs Use of non-timber products	Nminal Ordianal	Descriptive Statistics,frequency tables,percentages, mean,standard deviation

To determine how level of awareness influence conservation of Mt.Elgon forest	Awareness	forest conservation	Knowledge on legal matters , Training on forest Conservation, and Knowledge on aesthetic value of The forest	Tree Nurseries,A forestation programs Use of non-timber products	Nominal Ordinal	Descriptive Statistics,frequency tables, percentages, mean,standard deviation
To establish how shamba system has influenced conservation of Mt.elgon forest	Shamba system	forest conservation	Cultivation on Forest researve, Forest fires,and Logging	Tree Nurseries, A forestation programs Use of non-timber products	Nominal ordinal	Descriptive Statistics,frequency tables, percentages, mean,standard deviation

CHAPTER FOUR

DATA PRESENTATION, INTERPRETATION AND ANALYSIS

4.1 Introduction

The purpose of this study was to investigate on factors influencing conservation of Mt.Elgon Forest in Bungoma County, Kenya with the main aim of correcting the various activities that may undermine the conservation of the forest

This Chapter Presents research findings unearthed after data analysis, interpretation and presentation. It is organized according to the research themes/objectives of the study: Influence of decentralization forest management practices in conservation of Mt Elgon forest, Influence of community participation on conservation of Mt.elgon forest, Influence awareness on conservation of Mt.Elgon forest, and influence of ‘shamba system’ on conservation of Mt.elgon forest.

4.2 Questionnaire Return rate

To determine the questionnaire return rate, there were 400 questionnaires distributed among 400 households in the Selected Sub-locations in Mt.Elgon District. All the questionnaires were distributed to the various households summing up to 400 questionnaires. With the help of the CFA officials, 320 questionnaires were recovered representing 80% of the questionnaire return rate. 100% questionnaire return rate could not be ascertained because it was hard to reach out some places such as Labot due poor road networks and other human settlements in the gazette area like Mosop of which some households that practiced shamba system inhabited.

4.3 General characteristics of the respondents

In the administered questionnaire, the respondents were expected to give brief general information about them. The information was on: Gender, Age, and the level of Education. These variables are important since they determine the interactions that exist between the community members and the forest. The age aspect denotes the level of experience with interactions about the forest; while, gender matters and Education denote the level of awareness about the Forestry matters, attitudes and Consciousness about the environmental protection.

The respondents were asked to indicate their gender. 60% were of the Male Gender while 40% were of the Female Gender. Age was also another variable that was assessed based on the three Categories: Between 18-25, between 25-35, and those that are Over 35. The reason for the Categorization is because 18-25 are perceived as young youths, 25-35 perceived as grown up youths, while those Over 35 Perceived as Adults. As a result, 16% were between 18 to 25, 35% were between 25 to 35, and 49% were Over 35 years.

The respondents were asked to indicate their levels of education. 15% had never been to School, 49% had attained primary Education which constituted the largest Number of the respondents. Those who had attained the secondary school education were lower than those who had attained primary education with a percentage of 29%. Those who had attained College Education were 6% while those who had attained University/postgraduate education were 0.9% which was the least number of the respondents.

The table 4.1 below illustrates the summary of the distribution of the respondents according to: Age, Gender and Education

Table 4.1: Summary of the general Characteristic of the Survey respondents

Variable Name	Variable Description	No. Of respondents'	%
Gender	Male	192	60%
	Female	128	40%
Age	18-25	51	16 %
	25-35	112	35%
	>35	157	49%
Level of Education	Never been to School	48	15%
	Primary	157	49%
	Secondary	93	29%
	College	19	6%
	University/Post Graduate	3	0.9%

N=320

4.3.1 Relationship of the Characteristics of the respondent.

A bi-variant analysis by cross tabulation was done on: Age, Gender, and Education to assess the relationships.

4.3.1.1 Age and Level of Education

The distribution of age and the level of Education were done and the results of the findings are as shown in the table 4.2 below

Table 4.2 Distribution of Age and level of education

Age	Never gone to school		primary	Secondary college		University				
18-25	10	3%	25	8%	45	14%	2	0.6%	1	0.31%
25-35	17	5.3%	39	12%	30	9%	10	3%	2	0.6%
>35	21	6.6%	93	29%	18	16%	7	2.2%	0	0.0%

As from the above findings, majority of the respondents:6.6% above 35 years of age had never gone to school, while the least in the distribution of the respondents;3% of those who had never gone to school were those of age 18 to 25.5.3% of the respondents between the age of 25 to 35 have never gone to school. At the primary level, the leading age of those who have reached the primary level are those above 35 years old. This is the reverse of the former at 29% .12% of the group of age; 25-35 attained the primary level education and 8 % of age 18 to 25 had attained this level of education. From the above distribution, it can be established that majority of the residents in Mt.Elgon District have attained the primary school level of Education. Moving to the secondary School level, 16% of the respondents above 35 years have attained these level of education.9% of ages 25 to 35 had attained the secondary education while 14 % of the age 18-25 had attained the secondary Education. Moving to the College level, the general population is in a decreasing order 0.6% of the respondents between the ages of 18-25 had attained this level of education.3% between the age of 25 to 35 had attained the college level of education while 2.2% who are over the age of 35 years old have attained this level of education. Majority of the respondents that have attained the university level of education are those between the ages of 25-35 with 0.6%, those who have attained the University level in the ages 18 to 25 are 0.31% while the ones that have the leased representation in this level are the ones over 35 years Old with 0%

4.3.2.2 Gender and level of Education

Comparison was also made based on the gender versus the education level that one has attained. In the category of the number of the respondents that have

never been to school, Female Gender leads with 11.25%. and the Male gender follows at 3.4%. 28% of the Male have attained the secondary education with 21.6% of the female gender have had access to this basic education. In the Secondary school level, majority of the male gender have attained the secondary school level of education at 17% while the female gender stands at 13.4%. The summary of the above is as shown below

Table 4.3 Gender and Education

Gender	Never gone to School		Primary		Secondary		College University			
Male	12	3.4%	88	28%	50	17%	3	0.94%	3	0.9%
Female	36	11.25%	69	21.6%	43	13.4%	16	5%	0	0%

4.4 Influence of Decentralization of Forest Management Practices

The above objective ought to unearth the extend in which decentralizing forest management practices influence the conservation of Mt.Elgon Forest. The indicators for above in which the households were to respond on above were: CFA’s formed, presence of other Conservation groups, and Presence of Regional forest management Office.

4.4.1 Decentralization of forest Management practices

The first question that the respondents were asked was whether decentralization of the forest Management practices was the most ideal method of conserving the Forest. There were variant ideas on the above item as 35.9% accepted while 64% of the respondent’s declined. For those who accepted that it is the way out for forest Conservation had various reasons:

One is that the Community members are involved in the Management of the forests through direct participation through CFA, Secondly, Decentralization of the Forest Management offers a base for democratic participation since the community members engage in Competitive elections OF CFA Members, also it promotes the aspects of ecotourism, and access to other forest resources like honey. The summary of the above findings are as shown in table 4.4

Table 4.4 Distribution for reasons for support of decentralization.

Reasons	Frequency of reasons	%
Community participation	96	30%
Forester Democracy through Elections of representatives In CFA	153	48%
Promotes ecotourism	6	2%
Other Forest resources	64	20%

On the other side, the number of the respondents who declined on their responses was higher at 64 %. The reasons that they gave ranged from: Lack of good will from the Forest officials and the KFD to decentralize Forest services. This is seen as the way of loss of Control of the resource management. Secondly, was an aspect of self interest among the CFA officials who would want to meet their material gain by being biased in service

delivery and delegation. They also lack cooperation with the other parties on the decentralized system like the Community. Third is political interferences whereby the political leaders would want their own to be part of the CFA for material gain or access to forest resources, and Lastly lack of funds to support the system since the community and other actors have to be enlightened on the operations. The summary of the above responses are as shown in table 4.5 below.

Table 4.5: Distribution for the reasons for the decline of decentralization

Reasons	Frequency of reasons	% of reasons
Lack of good will among forest Officials	74	23%
Self interest among CFA	125	39%
Political interference	74	23%
Lack of Funds	48	15%

The respondents were asked on whether they knew any CFA groups that available.

Majority of them to a tune of 85% knew of a CFA group in Kaberwa Forest, only 15% were not aware of the existence of any CFA group. The activities that were being undertaken by CFA as mentioned were: Informing the Kenya Forest Service officials on any illicit practices Like logging and charcoal

burning in the forest. Secondly, they sensitize the community about the aspects of Forestry though as observed to the lowest level. Part of the administration Of ‘shamba system’ farms and residential agriculture. Lastly, they assist the Community members to benefit from the forest resources like honey harvesting.

The respondents were also asked whether there are groups that deal with conservation of the forest. All of them surprisingly said ‘yes’ many of the being: youth groups, women groups who tame tree nurseries for economic good as they sell to KFD. Alongside that, they also sensitize the community members on the importance of conserving the forest. Other of the groups do honey keeping in the reserved areas of the forest by the help of KFD.

The following table 4.6 shows the distribution for the above responses

Table 4.6 Distribution for the activities carried out by CFA and other groups

CFA/Groups	Activities	frequency of responses	% of frequency
1. CFA	Provide relevant information to KFD Officials	176	55%
	Sensitization to the community	35	11%
	Administration of ‘Shamba System’ farms	278	87%
	Assist the community to benefit	74	23%

	From Forest resources		
	Others	86	27%
2. Groups	Tame tree nurseries	314	98%
	Community sensitization	22	7%
	Honey harvesting	70	22%
	Others	48	15%

4.5 Influence of community participation in conservation of Mt.Elgon forest

In the second objective of influence of community participation in conservation of Mt.Elgon forest, the indicators were: Existance of tree nurseries, reforestation programs, and use of non timber products.

First,the respondents were to answer on whether the Community participates in taming the tree nurseries within their communities.100% response indicated that there are tree nurseries within the Community. They were to indicate whom they sell the seedlings to and the reasons. Among the User groups that the tree seedlings area sold to Are: KFD for reforestation programs. The respondents indicated that this user group buy there seedling at a moderately

higher price than other user groups, Ministry of special programs is another user group that the community members target as the consumers for the tree seedlings for the purpose of carrying out forestation in public utilities like schools and hospital alongside conserving the water towers. Another user group identified is the groups that exist. The groups can also intern sell to other groups of users as an economic activity. Another user group identified was the Community members who purchase for the purpose of tree investment.

On whether the community undertakes reforestation programs, 100% yes response was encountered. The Target areas for above as indicated by the respondents are: Forest reserves, individual farms, slopy lands and along the river banks. The summary of the above as shown in the table 4.7 below

Table 4.7: Distribution of target user groups and areas for tree seedlings and reasons

Target area	User Groups	Reasons	Frequency	% freq
Forest reserves	KFD	Friendly price	250	78%
		Reforestation		
Slopy lands, Special programs		Environmental	138	43%
River banks		Conservation		
Individual Farms				
Community Members		Investment in trees	267	83%

Other user Groups	Income generating activity	173	54%
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Majority of the respondents 87% use timber products. They clearly mentioned that they use wood as source of energy, Fencing, construction, and Furniture. Respondents that disagreed said to some extent there is the use of non timber product Like: Grass, bamboo, and herbs but at minimal level of 13%. When the timber users were asked about the sources for the timber, their responses were categorized into Four: The first source was getting timber/wood products like fencing poles from the dealers who visited the forest at night or during the rainy season and sell them at a fee, this stood at 80%. Another Source was getting directly from the forest whereby, when some community members needed firewood, fencing poles and timber for construction, they entered directly into the forest and harvested their products; this stood at 66%. Others had planted some trees in their farms, and therefore whenever there was need or for use, they fell down trees and used as per their needs. The last group purchased directly from the yards or ready furniture from the carpenters. The above stood at 23% The Findings are as shown in table 4.8 below

Table: 4.8: Distribution of the sources of timber products, uses versus %Frequencies

Sources of Timber	%Frequency	Uses	%Frequency
Forest	66%	Source of energy	99%
Individual farms	57%	Fencing	48%
Purchase from dealers	80 %	Construction	99%

4.6 Influence of awareness on Forest Conservation

The respondents were to respond on whether there are Laws that Governed Conservation of the Forest. 100% response recognized on the availability of various legislations and Acts that govern the forest. The Laws that they mentioned were summarized into five groups. First, majority 90% were conversant with the aspect of Charcoal burning. Charcoal burning is the aspect that majority of them have clashed with authority in a bid to meet their economic needs. This could perhaps give an explanation for above result. Another aspect was the aspect of the permits before: grazing and collecting firewood which stood at 85% and 87% respectively. The community members are herders and they mainly use wood as source of energy; aspects that may have led majority of them to logger with the authority thus leading to understanding of such laws. 82% of the respondents also mentioned of ban of logging, which is another aspect that is moderately high. The last item that stood at 40% was ban of Bush Clearing using fire. This mainly applied to the farms that bordered the forest that would lead to spread of fires. This also meant that they understood that the forest is not supposed to be lit with fire. The summary of the findings is as shown in table 4.9 below

Table 4.9: Distribution of Laws for forest Conservation

Laws Mentioned	Frequency	% Frequency
Ban of Logging	264	82%

Ban of Charcoal Burning	288	90%
Ban of clearing Bush using fire	128	40%
Seek permits before grazing	272	85%
Seek permit before collecting firewood	278	87%

100% of the respondents agreed that the forest are important and has various benefits as well. Apart from the forest materials, the respondents identified various uses which were majorly categorized into five major benefits. One, 67% mentioned that the forest is important because of its aesthetic value due its wide range of canopy and various types of both ancient and planted trees. These offers attractive scenery for both local and international tourism. Secondly, the forest is a home for biodiversity which include a wide range for wild animals and plants.95% were definite about the above importance.70% said that the forest is a catchment area for large rivers and streams.40% were of the opinion that the forest balances the ecosystem since it is responsible for taking in poisonous gasses and excreting oxygen that helps in human respiration.Lasty, 20% felt that the forest is a pull factor for the rain which is much lower than the other factors. This can be explained in terms of religious and traditional misconceptions that rain comes from God but not from tree. The above findings are as presented in table 4.10 below

Table 4.10: Other importance of the forest

Benefits of the forest	Frequency	% Frequency
Aesthetic Value	214	67%

Home for biodiversity	304	95%
Catchment for Water	224	70%
Balance of ecosystem	128	40%
Pull Factor	64	20%

On whether there exists civic education in the community of forestry matters 68% of the respondents were of then opinion that they are minimal.10% agreed that they do exist while 22% were of the opinion that they do exist.When they were asked to mention some of the groups that facilitate above, 30 percent of the respondents that had accepted mentioned KFD,Other 45% mentioned about NGO’S, 20% of the respondents mentioned of :Community Groups while 5% mentioned of other institutions and partners in the community such as Provincial administration,Church and schools.The Summary of the above findings are as shown in table 4.11 below

Table 4.11: Civic education in the Community

Facilitators	Frequency	%Frequency
KFD	21	30%
NGO	31	45%
Groups	14	20%
Others	4	5%

N=70

4.7 Influence of ‘Shamba System’ in Conservation of Mt.Elgon Forest

The respondents were to respond on whether there is increased Cultivation on forest Reserves. The general response was Yes to a level of 99%.The above is as a result of ‘Shamba System’ and non residential Cultivation .The effects for the above are numerous ranging from good to worst.95% of the respondents

were of the opinion that the program leads to a reforestation program since the farmers engage in planting trees while they grow their crops and taming the young seedlings. This is done until the trees are overgrown then the farmers are shifted to another place. 97% said that it increases the income of the household since the landless have a place to grow their crops. On the other hand, the limitation of the program was increasing human activity in the forest resulting into logging. The respondents that were of the above opinion were 78% while 68% were of the opinion that it leads to forest fires. This is because some of the farmers are cigarette smoker and leave the thrashes with flames that may result into fires. Other Causes is in case of bush clearing and using fires in cooking food in the farms; when the fires are not attended to, it may result into forest fires. The summary of the above findings is as shown from table 4.12 below

Table 4.12: Effects of ‘Shamba system’ program

Effects	Frequency	%Frequency
Reforestation	30	95%
Income to the household	310	97%
Logging	250	78%
Forest Fires	218	68%

On the other hand, the respondents strongly agreed that there exist annual forest fires that consume the forest. The main causes for the above are: Charcoal burning at 97% whereby, the charcoal burners do not put off the flames thus leading to burning of the thickets of bushes and eventually the entire forest. Honey harvesting has also been attributed to be the main cause of the forest fires at 95%. Other respondents said that burning of the forests prompts the onset of the rains. The clouds are mistaken to be collection of smoke and therefore the only way is to concentrate further the collection of the smoke, through burning of the forest. The ones that shared the above opinion stood at 73%. Land preparation was another cause attributing to forest fires at 83%. During the dry seasons like December, whereby the fires spread un

controllably thus leading to burning of the forests. Lastly, some do it intentionally for their own untold curiosity to explore nature. 58% of the respondents do so were of the similar view. The below table 4.13 shows the summary of the above findings.

Table 4.13: Causes of forest Fires

Cause of forest fires	Frequency	%Frequency
Charcoal burning	310	97%
Honey Harvesting	304	95%
Prompt onset of rains	234	73%
Land preparation	266	83%
Intentional	186	58%

On whether there exists logging, 98% of the respondents were in agreement that there is rampant logging especially the hard wood for the purpose of construction of the houses and toilets, and fencing. The main causes are majorly attributed to increased human activity in the reserve area. 98% of the respondents were of the opinion that the main cause is firewood. 93% were of the opinion that it is due to Corrupt forest official while 90% were of the opinion that it is majorly done for commercial purposes. The summary of the findings are as shown in table 4.14 below:

Table 4.14 Main causes of logging

Causes	Frequency
% frequency	

Construction materials	314	98%
Firewood	314	98%
Corrupt officials	298	93%
Commercial purposes	288	90%

4.8 Kenya forest Department

The importances of the forest as explained by the forest department are: It provides the aesthetic value since it has a wide range of flora and Fauna that are in an organized tree canopy. This fosters eco tourism and other sceneries for social and cultural heritage. Secondly; it is a source of timber whereby the community members benefit through the issuance of permits. The forest is also a habitat for biodiversity; home for plants and wild animals. It is also a pool factor for the rain since it is able to attract rain and lastly it is source/water reservoir for many rivers and lakes.

The major achievements of KFD in Conservation of the forest are numerous. First; it enforces the forest conservation laws through its forest officials. The law breakers are arrested and taken to court depending with the intensity of the vice. Some are guided so as to instill proper character. The second achievement is undertaking reforestation programs through Shamba system and other initiatives to maintain the tree Cover. The other achievement is promoting Community participation through CFA. The community can benefit from eco tourism, and other forest materials like honey. Lastly, it has worked together with KWS in a form of network to patrol, and conserve the forest since it is a home for wildlife.

The major forest threat is forest fires. The forest fires are majorly caused by the Charcoal burners, honey harvesters, Land clearance and other careless practices in the shamba farms alongside ignorance aspects of burning the forest to prompt the onset of the rains. The other threat is logging which majorly target on the poles for: Fencing, construction of the houses, and selling for commercial services. Charcoal burning is another major vice whereby, it is done majorly for commercial services. Around the market areas, you would largely experience women selling charcoal in tins. Other challenges are due to Financial constrains and few forest officers/stations to intensify patrols.

The above threats have been addressed through various legislations through banning of activities such as: Logging and charcoal burning. This has been immensely been boosted by increased patrols by the Forest officers and sensitization of the community members through public barazas, media, and through brochures. The KFD partners with other departments like KWS, NGO and other community groups in forestation and sensitization of the Community members through training programs. Due to lack of Funding, the KFD largely relies on Non Governmental organizations and the provincial Administration in the sensitization on Forestry matters.

KWS assists in patrols and apprehending the people that enter the forest unlawfully. They sometimes carry joint patrols in case there are any challenges in the forest. The KWS is committed to conserve the forest since it is the homes for wildlife. KWS do carry out sensitization programs geared towards conservation of the forest and restraining human beings from accessing the forest reserve without any substantial permits. The KWS

legislation are supportive also in the extend that they bar any human activity in the forest.

Through the community members can benefit from getting the shamba System farms. This enables them to grow their food and income. This can be viewed as one way to alleviate poverty especially among the people that were internally displaced from Chepyuk settlement scheme. The Community also benefits through CFA whereby, the Community is represented in decision making regarding Forestry and benefit through: Ecotourism and Bees keeping. The KFD also benefits the Community through giving to the first priority to the registered Millers from the Community during Lumbering of dead wood.

The Community has been empowered through Public Barazas where there main venue has been Mt.Elgon County Council Hall where they meet all the stakeholders including all the Departmental Heads and the Provincial Administration Like the Chiefs, Do's, and DC. The Community is enlightened about the need to conserve the Forest while the provincial Administration as well is treated as agents to propagate the same information through other meetings like public Holidays. The world environmental Day and Labor Day are the Key events that mark the Celebration and sensitization on Forest Conservation. Awareness is also made by distributing brochures and other publications, media through Radio marketing programs.

The community Members has thus played Significant Contribution in Forest Conservation by: Taming tree Nurseries whereby they sell them to the Forest Department. The community therefore acts like the source of the seedlings. They take part in the reforestation programs in I shamba System farms as well

as taming the young trees. The Community also works hand in hand with the Forest department as they volunteer vital information and reporting the illegal activities in the Forest. In case of forest fires the community members take part in extinguishing fire.

The future plans for Mt.Elgon Forest Department is to massively increase the forest cover through reforestation programs. This can be achieved through growing trees in other bear forest reserves. The other plan is to have an intensive and extensive public awareness on the forestry matters alongside fostering public relations with the community Members who have negative attitude towards the forest officers from the acts of brutal beatings in case they are found in a mistake. Last but not Least, the KFD is to intensify Community participation through strengthening CFA by empowering the leaders that are elected to represent the community.

CHAPTER FIVE SUMMARY, DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter comprises of: Summary of the study, Discussion on the Study Findings, Conclusions of the Study, and Recommendations of the study ,contribution top knowledge and Suggestions for Further Studies

5.2 Summary of the study

The purpose of this study was to investigate factors influencing conservation of Mt.Elgon forest, Kenya with an aim of conserving the forest. The study was guided by the following objectives: To determine how decentralization of forest management practices has influenced conservation Mt.Elgon forest , to

determine the extent in which community participation influence conservation of Mt.Elgon forest, to determine how the level of education influence conservation of Mt.Elgon forest, and to establish how 'shamba system' influence conservation of Mt.elgon forest

The research design used was descriptive survey with target population of 19,306 households in Mt.Elgon District. A sample size used was 400 households which is a total Disproportionate samples drawn from the 6 sub locations in Mt.Elgon District which represent 2.07 % of the entire population selected through systematic sampling technique with the Kth Unit being the 48th.

Data was collected using questionnaires and informant interviews and analyzed using descriptive statistics such as means and percentages. Data was presented by use of frequency distribution tables while study findings were interpreted and discussed.

5.3 Discussion on the Study Findings

The first objective under investigation was the influence of decentralization of forest Management practices on conservation of Mt.Elgon Forest. The community forest Associations enter into an agreement with KFS to assist in safeguarding the forest resources through protection and conservation activities. In Exchange, they are expected to receive timber or non timber forest products (NTFP) as well as Revenue from Community Based Industries, ecotourism and recreation, scientific and educational activities. The decentralization as is expected to enhance, biodiversity conservation, the equitable distribution of benefits, conflict resolution, poverty reduction, and sustainable use.

CFA's have been formed in regard to above aspects in Mt.Elgon Forest, especially in Kaberwa and Kaboywo for the purpose of assisting in Management of the forests. The benefits of the above system as per the respondents that supported is that the Community members are involved in the Management of the forests through direct participation through CFA, Secondly, Decentralization of the Forest Management offers a base for democratic participation since the community members engage in Competitive elections in CFA Member, also it promotes the aspects of ecotourism, and access to other forest resources like honey

Decentralization system as from the research findings is quite unpopular among the residents of Mt.Elgon District. Reasons are that; one, the elections of representatives to CFA are biased and is influenced by political forces. Secondly; the CFA officials have not performed their roles adequately since for the last period of two years, the CFA officials have continuously wrangled over issues of control and selfish gains

Community based conservation groups do exist in the community. They range from women groups, youth groups and CBO. The above groups carry out tree nursery business with the main target of selling them to the KFD. They also, sell the seedlings to other Community members, other groups and the Ministry of special programs These groups also engage in the reforestation programs in the reserve area whereby apart from selling the seedlings, they provide labor services to KFD. The groups do sensitization programs and raise awareness to the community Members. It means that the impact for the above is more felt since they are many and their services are felt too. The regional Management is another aspect of then decentralization whereby the Forest stations report to

the regional management for further action. This has been, though not felt so much but has aided resolve the Forestry issues of Management.

The Community at large has participated in various ways in Conservation of the forest. The individual members of the community have bred tree nurseries. This offers a resource base for the KFD to supplement the tree seedlings to foster reforestation programs. Most of the them when KFD lacks enough seedlings; the alternative source is actually from the community member. The community members also form a base source for the labor in during the reforestation exercise. The Community on the other hand has failed to participate in conservation of the forest by some engaging in illegal activities such Charcoal burning and Logging as pointed out by Ongugo and Njuguna, (1999). The element of using non timber like bamboo products is very low. As pointed out in various studies, Bamboo is a fast growing, widespread, low Cost, environment enhancing (Xuhe, 2003). Which means therefore that the main Challenge is overreliance on wood/timber products as source of energy, Construction, Fencing and Commercial purposes to cushion from poverty disadvantages.

The third research objective was the influence of awareness in conservation of the forest. Many of the household agreed on the fact that there is lack of awareness on Conservation of Mt.Elgon Forest. From the research findings, it indicated that basically the respondents understand only on the does and don'ts in respect legal matters which are much narrowed in prospects. The Community is blamed on one hand by not keeping insight aspects of forest decentralization and the provisions in the Forestry acts .On the other hand, the people that are charged with the responsibility of empowering the community

like KFD are not in action. As Baraza (2002) points out, legislations in Kenya are numerous and comprehensive and range from: Forest Act cap 385, Wildlife Conservation Management Act Cap 376, Plant Protection Act 324 but administered without Central Coordination, by a wide range of public bodies. There are minimal Environmental Education towards conservation of Mt. Elgon forest. The environment conservation Education is to be carried out By: NEMA, CFA, KFD and other government/non governmental organizations. Through above mentioned bodies, the community members are in a position to have enough knowledge on how they can sustainably use the forest resources without being distanced from the forest aspects. Apart from that, many of them are not aware of the various forest Acts and laws that governs the forest Management.

On the aspect of awareness the respondents lack enough understanding on the importance of the forest other than the material gain. Lack of such understanding would lead to high difficulty in conservation of the forest. They were able to identify that the forest is a pull factor for the rainfall. At this point, many of the respondents seemed not to be aware of that. This has majorly been attributed to Cultural aspects, illiteracy, misconceptions and ignorance. Lack understanding is also peaked the role of the forest in balancing the ecosystem and the aesthetic value of the forest based on the wide range of tree canopy. More understanding is on the forest being the home for wildlife as outlined by Ongugo and Njuguna, (1999).

As Catree, (2002) points out, Agro forestry models have led to massive increased human activity in the forest thus contributed to depletion of the forest cover as a result of Forest fires, logging and charcoal Burning. There are

increased forest fires in Mt. Elgon Forest which is attributed to shamba system since it is viewed to get pass to the forest. Other Causes of fires are: Honey Harvesting, Burning the forest to prompt onset of rains, Land preparation, while others are intentional. Although it is illegal to light fires in the shamba farms, some farmers light fires while preparing their meals in the farm. After that, the fires are left without being put off. What results is spread of fire, hence burning the forest. Other forces for the depletion of the forest are economic constraints leading to commercialization of the forest products.

5.4 Conclusions of the Study

The study examined factors influencing conservation of Forests in Bungoma County: A case of Mt. Elgon Forest, Kenya. The study Variables were:

Influence of decentralization of forest management practices in conservation of Mt Elgon forest, Influence of community participation in conservation of Mt. Elgon forest, Influence of awareness on conservation of Mt. Elgon forest and influence of 'shamba system' in conservation of Mt. Elgon forest.

The Study revealed that, Decentralization of Forest management practices has not been well Conceptualized since it is marked by ineffective work of CFA and as pointed out, Decentralizing takes different forms: Decentralization delegation, devolution, and privatizations (Meinzen-Dick and Knox 2001) but more emphasis is laid on CFA. This aspect is also supported by other conservation groups in the community. The worst thing also experienced is lack of involvement of the community members in policy formulation and implementation. However through its own initiatives, the community has tried to support the conservation programs by being the harbors of the tree seedlings, providing labor during reforestation, and watchdogs of their own resources.

Awareness levels among the community concerning conservation of the resources and the essentiality of the forest. Most of their knowledge inclined on the material value of the forests. This response was suggestive that it is because benefiting from the forest resources either legally or illegally was a routine practice. In focus on the 'shamba system', the motive of the above was geared into uplifting the economic status of the squatters and the landless by offering them space of Cultivation. As witnessed, the above system only lacks strict Management and control to undo the reported human vices but not banishing the system in entire. But unless that is done, there shall be increased logging and Charcoal burning.

5.5 Recommendations of the study

From the first Objective, other forms of decentralization such as: Delegation, Devolution, and privatization to be operational zed to strongly anchor the system as pointed out by Meinzen-Dick and Knox (2001). This will broaden the scope of decentralization other than making use of CFA only. This does not mean that the CFA or the use of CFG to be abandoned. The Utilization of the CFG through CFA to be strengthened by abiding by the rules of elections of members and at least base on the education background to any of the member elected to CFA since they are to Manage the forest resources on behalf of the community. The CFA members to be trained also to foster their efficiency and effectiveness

On the second objective of Community participation, as long as there exist targets to involve the community like by decentralization, the community should be a ready receptor to comply. Not unless they are empowered, some will not be in a position to participate in the forest conservation in any way. So;

the first recommendation is that proper civic education to be done by the relevant actors for effective participation. Secondly, the KFD to provide the community members with variety of the seedlings to grow variety of the trees. The Forest departments should also involve itself in purchasing the seedlings from and labor from the community. The groups that exist in the community to be enlightened on Forestry because they also need to provide the right information to the members of the community.

Awareness on the forestry is a key tool towards forest Conservation. The community members should be actively enlightened on the forestry matters. It is ironical that majority of the residents of Mt.elgon District don't understand about the benefits of the forest to the community and to the surrounding environment. The only popular awareness as observed in then Findings is: Sources of Charcoal, Timber, and home for the habitat. The rest of the benefits were only identified by the experienced or those whose education level was high. Awareness also to be done in line with the forest laws and acts for the community to actively engage in the conservation programs. What is essential also is to involve them in the formulation and implementation of the laws. A good rapport between the KFD and other actors like the Community and KWS is done by making a clear understanding on the boundaries of legislations. Recommendations on shamba system are as follows: One, Proper supervision and Management be done jointly with CFA to so as to curb on illicit operations like: lighting fires, logging, and Charcoal burning. Secondly, Corrupt CFA and the Forest officials that Compromise and collude with the law breakers to benefit from the illicit practices in the forest to be apprehended. Although shamba system has uplifted the economy of the poor,

with the little number of the forest officials, supervision would be in effective. Therefore the number of acreage under shamba system to be reduced so as to limit human activity in the forest and for easy management.

5.6 Contribution to the body of Knowledge

Objective	Knowledge
<p>1. Decentralization of forest conservation Management practices</p>	<p>It has other ways of implementing: Delegation, Privatization and devolution not only through CFA and FFG</p>
<p>2. Influence of Community participation</p>	<p>largely depends on the effectiveness of KFD to carry out its roles to the latter not by not enforcing rules in a way that may Create negative attitude</p>
<p>3. Influence of awareness on forest conservation</p>	<p>For it to be successful it require support of Other actors such as: provincial Administrators, NEMA, community</p>

Willingness , but when left to

KFD alone it may face

challenges

4. Influence of shamba system in forest

It is a system that relies on

effective Management for its

success as it

Conservation

Facilitates increased human activity

In the forest

5.7 Suggestions for Further Studies

Further studies on forest Conservation dwell on the influence of the social-economic factors in Conservation of the forest. Studies to Focus mainly on the ‘shamba system’ practice, history, operations, and how it impacts on Forestry

REFERENCE

Arnold, J. E. M. (1990) Social forestry and communal management in India.

Social Forestry Network Paper 11b, Overseas Development Institute, London

Anon (1993).*State of the forest report. Forest Survey of India*.DehraDun

Agrawal,A.A.,and J.C Ribot(1999)Accountability in decentralization:A

framework with South Asian and West African cases.The journals of

developing areas 33:473-502

Bates, R. H. (1989) .*Beyond the Miracle of the Market*. Cambridge University

Press, Cambridge

- Bene, J.G., & H.W. Beall., (1977). *Trees, food and people*. Ottawa: IDRC
- Borda, F. ed. (1985) .The Challenge of Social Change, the basis for community development. *Journal of the Community Development Society* **23** (2), 20–38
- Clay, J. ed. (1988) *Indigenous Peoples and Tropical Forests: Models of Land Use and Management from Latin America*. Report # 27, Cultural Survival, Cambridge, MA
- Cunningham W.P., and Saigo B.W., (1992). *Environmental science-2nd Edition*, W.M.-C Brown Publishers, Dubuque .
- Chitere, O. P. ed. (1994) *Community Development: Its Conceptions and Practice with Emphasis on Africa*. Gideon S. Were Press, Nairobi.
- Castro, A.P. (1988) Southern Mount Kenya and Colonial Forest Conflicts. *World deforestation in the twentieth Century*. Duke University press
- Castree, N., and Braun, B., (2001), "socializing nature," *Social Nature theory, practice and politics*. Oxford, blackweel publishers.
- Etzioni, A. (1996) Positive aspects of community and the dangers of fragmentation. *Development and Change* **27**, 301–314
- Fairhead, J and M. Leach, (1997) "culturing trees: socialized knowledge I the political ecology of kipsie and Koran forest islands of Duinea," in sea land k(ed). Intermediate technologies publications 7-22
- Ganz horn, J.U. (2000) Effects of fragmentation and assessing minimum viable populations of Lemurs in Madagascar. *In isolated vertebrate communities in the propics*, Bonn.zool, 46:265-272

GOK (2006) *Energy act*.<http://www.erc.go.ke/energy.pdf>

GOK, 2014.*Kenya forest policy*. Government printers

IUCN, 1994. Guidelines for protected area management categories. *IUCN*

Commission on National parks and protected areas with assistance of the world conservation Monitoring centre

Johnson, S. 1995. "Clarified Joint forest management concepts," *In*

Roy, S. B. (ed). Enabling Environment for joint Forest management, New Delhi inter-India publications, 45-59

King, K. F. S and M. T Chandler, 1978. *The wasted Lands*. Nairobi: ICRAF ic, and reality. Soc

Kallert, R. S. (2000) Community Natural resource Management. Promise, rhetoric and reality. *Society and Natural resource* 13(8) 705-715

Kenneth M Chomitz: et al (2007). *At loggerheads? Agricultural expansion, poverty reduction and environment in tropical forest*. Washington D.C world Bank

Miller G. T. J, 1994. *Living in the Environment*. 5th Edition, wadsworth inc Belmont

2002 (http://Depts.washington.edu/mpanews/MPA_36.html#gender)

Mugenda and Mugenda, (2003). *Research Methods: Qualitative and quantitative Approaches*. Acts Press, Nairobi, Kenya.

MPD, (2009). *population census*: Ministry of planning and Devolution, Kenya.

Nair,P.K.R(1985):*Classification of agroforestry sytem in the tropics.Forestry science vo.3*.The Netherlands:Kluwer Academic Publishers

Negi,S.S (1994).*Biodiversity and its Conservation in India*.IPC.New Delhi.

Ongugo O.O.,&Njuguna J.W.,1999.'Institutions and Natural Resources management conflicts:The case of planningMt.Elgon Forest User groups:*workshop report.Intergrated National Management planning.Mt Elgon 10th September 1999,Kitale.*

Ongugo,P.O and J.W Njuguna(2004).The potential effects of Decentralization Reforms on the conditions of Kenyas Forest resources paper presented to Biennial Conference of International Associations of the Study of Common property.CIASCP on 3rd-13th :August,2004.Oaxaca Mexico

Park C.C., 1992.*Tropical Forests*.Routledge,London

Pretty,JN.1997."sustainable agriculture,people and resource base.Impacts of Food production "*Forum for development studies* "

Rahnema, M.,(1992)(participation " in *sachs,w (ed).The development Dictionary : a Guide to knowledge as power*. London, Zed, books

Redford, K. (1990) The ecologically noble savage. *Cultural Survival Quarterly***15** (1), 46–48

Redford, K. and Mansour, J. eds. (1996) *Traditional Peoples and Biodiversity Conservation in Large Tropical Landscapes*. The Nature Conservancy, Latin America

Sussman, R.W., Green, G.M., Sussman, L.K. (1994) satellite image, human ecology anthropology and deforestation in Madagascar. *Human ecology*:22,333-354

StBA(1995)*Statistisches Jahrbuch für die Bundesrepublik Deutschland und für das Ausland*. Statistisches Bundesamt. Wiesbaden.

USAID,(2004).*Tropical forests*.<http://www.cbnrm.net/Resources/terminology/cbrm.html>

Wells, M. and Brandon, K. (1992) *People and Parks: Linking Protected Area Management with Local Communities*. The World Bank, WWF, and USAID. Washington, DC

Wasike S.,(ed)1999.*Review of PRA reports and secondary Data for MEICDP pilot areas*. Mt.Elgon District MEICDP, Kitale.

World Wildlife Fund (2000).Madagascar dry deciduous forests(AT0202)
http://www.worldwildlife.org/worldwild/profiles/terrestrial/at/at0202_full.html/ June 28 2015

WRM.(2002)*The causes of Deforestation and those responsible for it*,*Bulletin No.61*,Monterideo Rain forest Movement. IUCN. 1980. *World conservation strategy: living resource conservation for sustainable development*. Gland,

Xuhe,C.,(2003) *Promotion of Bamboo for poverty alleviation and economic development* .*Journal of Bamboo and Rattan*,vol2.No,4.pp.345.

APPENDICES

APPENDIX I: TRANSMITTAL LETTER

The respondents

Selected sub location in Mt.Elgon District,

Kapsokwony.

Dear respondent,

Am a post graduate student in University of Nairobi (UON) carrying out a research on factors influencing conservation of forests in Bungoma county .A case Of Mt.Elgon Forest, Kenya..I humbly urge you to sincerely volunteer any substantive information on the fore mentioned item. The ultimate goal is to

provide insight on factors influencing conservation forests in Bungoma County, Mt Elgon Forest being one of the largest reserves in the region that has recently been dilapidated by human factors and other underlying factors that the research aims to unearth so as to add necessary in put on how best to conserve the forests. The information given by you shall be treated with utmost confidentiality and your identity shall remain anonymous since you shall not be required to indicate your name anywhere in the research instrument

Your cooperation shall be highly appreciated.

Yours Faithfully,

Sign-----Kamamos Chemayiek Bonface-University Of Nairobi

APPENDIX II: MT.ELGON FOREST QUESTIONNAIRE

This questionnaire is meant to gather information about the factors influencing conservation of forests in Bungoma county .A case of Mt.Elgon Forest, Kenya. Your esteemed participation in above exercise voluntarily shall be applauded. Therefore, feel free in participating.

Section I :General Information

1. Respondents' Gender 1.Male [] 2.Female []

2. Age 1. 18-25[] 2. 25-35[] 3. <35 []

3. Level of education

1. Never been to School [] 2.primary Level [] 3.[Secondary Level []]
4.College []
5. University/Postgraduate

SECTION II:Decentralization of forest management practices

4. Do you think decentralization of forest management is the most ideal method of conserving the forests. 1. Yes [] 2. No []

5.(a) If yes,give reasons

(b)If no,Give reasons

6. Are there any CFA groups that you know

1. Yes [] 2.No []

7. If yes, mention the activities that they engage in

8. Are there other groups that deal with conservation of the forest?

1. Yes [] 2. No []

9. If yes, mention some of their activities

PART III: Influence of Community participation in Conservation of

Mt.Elgon Forest

10. There are tree nursery seedlings than exist in the Community.

1. Yes [] 2.No []

11. a) Whom do they sell their seedlings to

b) Why do they sell their seedlings to the mentioned groups

12. Does the Community members undertake reforestation programs

1. Yes [] 2.No []

13. If yes, mention some of the places

14. Community members use non timber products instead of timber

1. Yes [] 2.No []

15 .If yes, name some of the uses

PART IV: Influence of awareness on forest Conservation

16. Are there any laws that govern Conservation of the forest

1. Yes [] No []

17.If Yes, mention the ones that you know

-

18. Apart from the material gain from the forest resources, are their other advantages of the forest. 1. Yes [] 2.No []

19. If yes, mention them

-

20. Is there Civic Education that is provided in the Community about forest Conservation

1. Yes [] 2.No []

21. If yes, mention the groups of people who facilitate above

PART V: Influence of ‘Shamba System’ in Forest conservation

22. There is increased cultivation of the forest reserves as a result of the shamba system program 1.Yes [] 2.No []

23. Are there any effects of this program to the forest

1. Yes [] 2.No []

24.If Yes, Mention Some of them

-

25. There exist forest fires that Consume the forest, especially during dry Seasons of the year.

1. Yes [] 2. No. []

26. If Yes, what are the main causes for the above

-

27. There exists logging in Mt. Elgon Forest

1. Yes [] 2. No []

28. If Yes, mention the main causes for the vice

-

I sincerely appreciate your time and cooperation. Please check to ensure that you have not skipped any questions inadvertently.

Thank you very much! End

APENDIX III: KEY INFORMANT SCHEDULE

1. What is the importance of this forest?
2. What are the major achievements in Conservation of this forest?
3. What are the major threats facing the forest?
4. How do you address above threats?
5. How does KWS assist you in Management of this forest?
6. How do you make sure that the Community Benefits from the forest?
7. What is the importance of shamba System?

8. How do you empower the Community to be aware about forestry management issues?

9. What are the roles played by the Members of the Community in Conservation of the forest?

10. What are your future plans of conserving this Forest?

End. Thanks

