UNIVERSITY OF NAIROBI
DEPARTMENT OF SOCIOLOGY AND SOCIAL WORK

AN ASSESSMENT OF THE FOREST CONSERVATION STATUS OF MAASAI MAU FOREST IN NAROK COUNTY, KENYA

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DECLARATION

The project is my original work and has not been presented for the award of a degree or certificate in this or any other institution.

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This project was submitted for examination with my approval as the University Supervisor.

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DEDICATION

The project is dedicated to my late mother Rozina Chao, whose commitment to raising leaders inspired me to become a senior manager and leader in the Government of Kenya and beyond.

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ABBREVIATIONS AND ACRONYMS

AFLEG	Africa Forest Law Enforcement and Governance
ARPIP	Action Research into Poverty Impact of Participatory Forest Management
EAC	East Africa Community
NCC	Narok County Council
KFWG	Kenya Forests Working Group
PCC	Public Complaints Committee
NEMA	National Environmental Management Authority
FLEGT	Forest Law Enforcement, Governance and Trade
EU	European Union
CFA	Community Forest Association
KFS	Kenya Forest Services
FSK	Forest Society of Kenya
KNPS	Kenya National Police Service
NCC	Narok County Council
FSC	Forest Stewardship Council

ABSTRACT

Forest covers are being reduced as a result of human actions, particularly in developing countries. Regardless of the numerous laws and policies passed in relation to forest management activities. The main objective of the study was to assess the forest conservation status of Maasai Mau Forest in Narok County, Kenya. The study objective was to explore the status of the forest conservation from the perspective of local agencies in charge of forest protection and conservation. A descriptive survey design was adopted to establish the opinions, perceptions and views of the respondents on various forest conservation issues. The target population constituted forest conservation agencies in the Maasai Mau Forest. The study employed a non-probability sample, which was carried out using a purposive sampling procedure where study respondents were selected based on the knowledge of the study topic. Thereafter, Fisher (1998) stratified exact test and sample size calculation method was used to select appropriate sample size from each of the target population's group. Sample size comprised 143 participants from Local administration, KWS, KFS, and County Rangers officials. The research employed both descriptive designs to help answer study questions. Study methodology are descriptive and inferential statistical techniques, which helped to obtain percentages, sum, and averages as well as correlations between study variables. Data were presented in figures, charts, and tables. Study findings indicate little success in forest protection and conservation by the agencies. The research outcome indicates that the process of safeguarding and preserving the forest the level of CFAs participation was inadequate. Few forest protection programs existed, while policies required to preserve the forest were inactive or poorly enforced. Therefore, the study concluded that institution responsible for forest conservation are weak and incapacitated. The situation has led to poor enforcement of forest conversation hence paving way for exploitation of forest resources, increased logging and human settlement in forest reserves. The study recommends that there is a significant need for neighboring communities to be sensitized on importance of forests in the ecosystem. Forest conservation authorities to be empowered, trained, and re-evaluated in a bid to improve their competences. The study findings are beneficial to Kenya National Government and Narok County Government in the reformulation of relevant forest management policies and regulations.

CHAPTER ONE
INTRODUCTION

1.1 Background of the Study

In the past, because of ample forest cover there was not much emphasis on the protection of forests. However due to the increasing demands for trees, and due to the increase in population and growth of the industrial and agriculture sectors it has become of paramount importance to protect forests (Mathu, 2007). Since forests are valued resources in all parts of the world the lack of proper forest management leads to significant economic losses (Blaser, 2010). According to Mondiale (2006) the destruction of forests leads not only to financial losses but also loss of biodiversity, poverty among legal forest enterprises, loss of heritage, increased soil erosion and continued degradation of forest vegetation.

Mondiale, (2006) noted that the reduction in the forest cover in most countries has been blamed on forest crimes which include all illegal and illicit activities in gazetted, non-gazetted, natural, and man-made forests on. According to Oksanen, Gachanja and Blåsten, (2011) the activities that have been considered to bring about these criminal activities, include illegal logging, illegal occupation, human encroachment, corruption, arson, and clearing of forest vegetation. It is argued that in addition to social-economic and environmental challenges that are caused by destruction of forests in the world, loss of forest cover also contributes to diminishing land productivity, famine, and droughts. The Global Forest Resources Assessment (2015), report indicated that in the last 25 years, there are significant changes in forests and forest management across the globe. In the year 2003 three regional based ministerial conferences were organized among three continents; Africa, Europe, Asia and North Asia. Organized by the world Bank the conference worked towards ensuring the political class is involved in Forest Management between 2001 and 2004 in Africa, Europe and Asia continents.

According to Mondiale, (2006) the passing of Declaration on Africa Forest Law Enforcement and Governance (AFLEG) by African countries and European Commission was to show commitment by African countries in implementing reforms aimed at protecting forests. In addition, the need to ensure institutions and individuals involved in

Forest Management has the technical know-how to undertake their responsibilities. The coming together and signing of a collective pact namely the East African Community Protocol by Kenya, Tanzania and Uganda on Environment and Natural Resource management (EACPENR) according to Mathu, (2007) was a clear sign that East African countries were ready to work together in ensuring Forest Management is done effectively and efficiently.

The signing of the protocol, the Kenya Government has worked tirelessly to combat forest crimes by among others; charcoal burners and transporters, forests encroachers and any other perpetrators of corrupt forest practices (Blaser, 2010). Despite these positive moves by the various states, the war on reduction of afforestation throughout the country has resulted to the increase of forest cover as well as prosecution of forest offenders. Globally, a significant area of forest cover are being reduced annually (Matiru, 2002). Thus, Forest crimes are rampant throughout the world, but more so in developing countries such as Kenya where encroachment, illegal logging and clearing of land for illegal farming and construction continues to inflict losses in excess of $10 billion every year.

Countries with huge forest cover such as British Columbia are currently being faced with numerous environmental issues with tree logging being one of the commonest challenges. Globally, tree logging continues to pose both direct and indirect environmental adverse impacts on the lives of people, nesting habitats, wildlife as well as nature at large. Statistics suggests a worrying trend not only in Africa but also the developed countries (Blaser, 2010). Evidence from numerous literatures indicate laxity of different forestry agencies to enforcement of environmental laws and policies, particularly on forest conservation, which has jeopardised forest cover. Also, forest and environmental agencies responsible of implementing such policies and laws are incapacitated to effectively undertake their mandate. Further, the integrity of some of these enforcement agencies are questionable. For instance, engaging in bribery and overseeing logging.

1.2 Statement of the Problem

Deforestation is generally perceived as an environment issue and its impact are mainly environmental making it to be largely discussed under that realm. However, contemporary studies as well as longstanding debates associate the problem to be largely triggered by social factors, which also have social implications. For instance, human settlement behaviour, urbanization, just to mention a few are more of social influence that aggravates deforestation. Also, other social attributed can be related to human behavior such as incompetence, laxity, unethical and immoral conduct of individuals who are in-charge of enforcing forest protection laws and policies. Further, when it comes to the topic of deforestation, most academicians have researched the issue using environmental impetus and fact rather than highlighting attaching social perspective to it. Little research links deforestation as a social problem. Though, these study percepts that the failure of forest agencies to curb deforestation is more of social aspects that environmental ones. Therefore, this study presumes that there are numerous social behaviours that significantly trigger deforestation. Using the case of Maasai Mau forest, this paper ought to explore some of the social aspects that trigger deforestation.

In most countries the idea of reducing forest destruction is a major concern irrespective of the level of human interventions. In Europe, institutions work towards sustainable forest management through developing systems that helps in harvesting of forest resources without destroying the environment or the welfare of the future generations (Global Forest Resources Assessment, 2015). However, in Africa and more specifically Kenya the sustainable management of forests is still a mirage. The contribution of Mau Forest complex as a primary source of water cannot be underestimated as Kenya relies heavily on rain water to undertake its agricultural activities. This in-turn affects the day to day socio-economic activities of the citizens majority of whom benefit directly or indirectly from agriculture. The government of Kenya has come up with various measures including the formulation of laws and policies to moderate the destruction of this significant forest resource.

Past studies in Africa have attributed the loss of forest cover and biodiversity in gazetted forests to inadequate establishment and implementation of policies, weak institutions, low levels of capable civil society, limited community participation and generally poor public service delivery (Oksanen, Gachanja & Blåsten, 2011). However, there seems to be very little if any past studies that focuses on non-gazetted forests to determine whether the same challenges bedeviling the gazetted apply to non-gazetted forests such as the Maasai Mau Forest in Narok County. It is because of this challenge that led to this study in order to determine extent of destruction of Maasai Mau Forest and the role of forest enforcement agencies, Community Forest Association officials (CFAs) in protecting and sustaining Forests.

1.2.1 Key Research Questions

i. Has re-afforestation been carried out in Maasai Mau Forest?
ii. How forest enforcement agencies succeeded in protecting the Maasai Mau Forest?
iii. How have CFAs contributed to the management of Maasai Mau Forest?

1.3 Study Objectives

1.3.1 General Objective

Key objective of the study was to find out the current situation of the Maasai Mau forest management in Narok County.

1.3.2 Specific Objectives

i. To assess the extent to which perceived re-afforestation activities have been undertaken in Maasai Mau Forest.
ii. To ascertain whether forest law enforcement Agencies have succeeded in protecting the Maasai Mau Forest from encroachment.
iii. To ascertain the level of CFAs participation in the conservation of Maasai Mau Forest.

1.4 Justification of the Study

Promotion and protection of forest covers is of great importance to the entire globe and thus the need to investigating the effectiveness of established Forest Laws Enforcement Agencies, re-afforestation activities, Community awareness and CFAs participation. The outcome of this study will hopefully help in amending where necessary, the Kenya Forest Act and other related legislation in order to enhance effectiveness in Forest management. In addition, the study anticipates establishing challenges faced in Forest Management which may form the basis of policy formulation by the Kenya National and County Governments on matters related to forest conservation. The general public is expected to benefit from this study by understanding their role in forest conservation, namely that of understanding and complimenting the work of the forest Laws Enforcement Agencies. Finally, more specifically shed some light to challenges encountered in Forest management of non-gazetted forests.

1.5 Scope and Limitations of the Study

Scope of the study was the Maasai Mau Forest in Narok County of the former Rift Valley province which had 22 forest blocks. One of which is the non-gazetted Maasai Mau Forest. Specifically, researcher looked at how Forest Laws Enforcement Agencies, re-afforestation activities, and CFAs participation have impacted on the sustainability of the conservation process of Maasai Mau Forest in Narok County. The study used a descriptive method that relied on the opinions and views of the respondents to analyze, interpret and make recommendations about the study. Respondents of this study included all agencies involved in forest conservation namely: KWS and KFS, County Rangers, CFAs and Chiefs. Data collection instrument mainly questionnaire was restricted in the sense that it gave opinion and views of the respondents which sometimes could not have been justified for generalization to other areas.

1.6 Definition of Key Terms and Concepts

For the purpose of this study;

Non-Gazetted Forest:	Community-owned forests under the trusteeship of a County government.
Management of Non-Gazetted Forest:	refers to maintenance of Non-Gazetted Forests.
Forest governance:	establishment of legislation to control access to forests for sustainable management of forests.
Forest law enforcement:	the measures taken to guarantee compliance with established rules and regulations to promote sustainable management of forests.
Deforestation:	removing of tree cover below the threshold value that describes a forest cover.
Reforestation:	planting of trees on land which was forested before
Forest degradation:	refers to the process of removing part of the vegetation and tree cover, leading to decreased capacity of forest to provide specific resources.
Joint Enforcement Agencies:	refers to Kenya Wildlife Services personnel; and Kenya Forest Service Personnel.
Local Administration:	refers to Chiefs and Assistant Chiefs.
CFAs:	refers to Community Forest Association Officials.

CHAPTER TWO
LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

The section contains details on the contributors to forest conservation independent variables namely; Forest Enforcement agencies, Re-afforestation activities, Community Awareness and participation of CFAs. Finally, how the contributors affect the dependent variable sustainable conservation of non-gazetted forests.

2.2 Sustainable Re-afforestation Activities

According to Chaudhry & Tewari (2017) at the international need, there is need to come up with strategies that will enhance effectiveness of managing forest resources by sustainably usage of produced forest products. They continue to note as much as the extent of the damage on the forest cover is in dispute by various scholars the need to find ways of conserving the forests is of paramount importance (Beentje & Ihlenfeldt, 2013).

Sustainable re-afforestation involves the process of planting and establishing a desired forest community on specific areas (EGSSAA, 2015). The most important part of the sustainable re-afforestation is the selection of the suitable tree species or forest community to manage. Forestry activities also included the re-afforestation of depleted natural forests, woodlands, and other tree covered areas (Global Forest Resources Assessment, 2015).

EGSSAA, (2015) further indicated that the natural regeneration methods which include the natural seeding root suckering, and sprouting are acceptable together with a standard re-afforestation technique across the globe include both natural and artificial methods. A combination of the techniques followed by appropriate forest management practices brings about sustainable re-afforestation practices. On the other hand, the artificial re-afforestation technique involves the aerial and ground seeding, hand and machine planting. In the US most of the states use artificial regeneration to carry out effective re-afforestation through ground seeding, machine and hand planting. In other developed nations a combination of natural and artificial regeneration of depleted woodlands and forests is encouraged. The majority of the countries use guidelines to provide a systematic re-afforestation to

minimize damage to cultural resources that may result from re-afforestation of cut-over sites. Additionally, the guidelines provide a system that helps in protecting the biodiversity, exposed mineral soils, nutrient balance and alteration of vegetation within available riparian area.

In Africa, the idea of cultivating in forests and using forest resources like firewood, herb trees for medicine in line with proper use of forest resources by ensuring sustainability and re-afforestation projects is encourage (EGSSAA, 2015). Finding appropriate tree species, carrying out the required maintenance and protecting the young trees from physical destruction ensures sustainable re-afforestation process.

Chaudhry & Tewari, (2017) further noted that other African countries carry out larger projects that not only put into consideration the short-term gains of the forests but also long term by having effective plans and strategies to enhance effectiveness in forest management. According to Soi, (2015) the struggle over reforestation of the Mau forest is linked to different social, economic, and political forces. In order to succeed in the re-afforestation process there is need to delineate political patronage from the process. It is also noted that for there to be sustainability in the process of re afforestation there is need to involve all other stakeholders in safeguarding the forest resources. Reducing the negative publicity associated with the forest management practices and re-afforestation programs will encourage the need for the forests conservation, especially from the local communities.

According to Chebii, (2015) forest conservation sustainability can be achieved through effective Civic education by the relevant authorities and this is significant towards the sustainability of all the re-afforestation efforts and the conservation of the forest resources. The role of the county government and National government in enhancing forest sustainability cannot be overlooked. Conducting civic education that teaches communities about the benefits of forest and the consequences of its destruction. Other policies and regulations on land use, fuel use, and farming are put in place to reduce illegal acquisition of forest resources for personal and commercial use.

Soi, (2015) further indicated that reducing the level of dependency by communities living adjustment to the forest as a source of livelihood and wealth helps in sustaining the re-afforestation efforts. It is further noted that appropriate solution to the deforestation challenge is the eviction of people with illegal settlements in the Maasai Mau forest helps in the re-afforestation programs. There is also need to have appropriate environmental conservation policies and by laws that restrict illegal activities such as logging, farming and grazing, and human encroachment. It is however, noted that, politics has remained a critical issue in the efforts of re afforestation by politicians for their political gains hence making it impossible for all the agencies involved in the conservation efforts to succeed. It is also noted that politicians have capitalized on the use of the affected communities for political expediency.

According to Kamau, (2014) the intervention of NEMA and other affiliate bodies in providing advise towards environmental and forest conservation plays a crucial role in sustaining the ongoing re-afforestation programs. It is also noted that reducing the amount of politics directed towards the evictions, the banning of charcoal and logging and illegal use of other forest resources helps in improving the sustainability of re-afforestation efforts.

2.3 Forest Law Enforcement Agencies

According to EGSSAA, (2015) report, governments globally are involved in forest management and sustainable conservation plans with the aim of maintaining and/or restoring forest cover. Majority of countries have assigned the conservation process to dedicated agencies who are directly involved in the protection of the trees and forests. Their primary role in the conservation process includes protecting, detecting, and eliminating forest crimes that threaten the destruction of forest and biodiversity. In Asia, some countries such as India, China, and Indonesia entrust the agencies in investigating forest-related crimes, collecting relevant evidence, arrest the culprits and carry out the charges. In North America, countries such as Mexico, Costa Rica and Columbia use the forest law enforcement agencies in conducting surveillance, arresting suspected individuals, and pressing charges in an effort to minimize and eliminate forest crimes.

In Europe, several countries implement scheduled crackdown campaigns targeting illegal activities in different forests across the region. The campaigns thwart any potential forest crimes and the illegal acquisition of forest resources. In the United States of America, the government entrusts uniformed Law Enforcement Officers (LEO) to carry out the implementation of laws to govern the National lands and resources systems. Further, responsibility of the LEO includes protecting, conserving, and managing all national forests across the country. Finally, responsibility of the armed LEO agents include making arrests, executing search warrants and making reports that contain information regarding the forest conservation and management practices in place.

Regionally, countries use similar law enforcement organizations to carry out various duties that include investigations, arrests, and prosecution of forest crime perpetrators. In Central Africa, entrust law enforcement organizations with certification schemes that minimize market access for illegal forest resources such as timber. The agencies further carry out monitoring activities in all forested areas to detect, investigate, and ease against destruction of forests (Njue, at el., 2016). In addition, other countries delegate dedicated and independent monitors to enforce strict forest laws with an aim of stopping forest-related crimes.

Several other countries from Sub-Saharan Africa also equip the law enforcement agencies with modern technologies to carry out comprehensive surveillance across forested areas to thwart all potential forest crimes (Njue, at el., 2016). The technologies such as satellite surveillance and geospatial technology provide data in a wall to wall mapping mode to widen the area under surveillance and other technologies used to capture, store, analyse and manage data collected from the forested areas (EGSSAA, 2015). Any detection of abnormal activity is handled by the dedicated law enforcement agencies to monitor and take the necessary actions.

2.4 The Forest Act of 2005

According to the forest Act of 2005, the laws are supposed to ensure that the efforts on Forest conservation sustainability are enforced effectively to enhance the forest

management practices. Kenya Government established the Forests Act of 2005 that instituted principles, legislations, and strategic goals regarding forests. The Act initiated the establishment of semi-autonomous Kenya Forest Service to keep guard and help in law enforcement in all forests. The act further promoted the creation of a professional forestry society and promotes commercial tree growing activities (Mathu, 2007). Additionally, the act is also devoted to the enforcement of the requirements of the act through the following: Offering powers to the officers to make arrests in local authority forests and provisional forests, The access and use of firearms when deemed necessary in order to execute the functions of the act, Prohibit any forms of activities in the forests including use of forest resources such as land, timber, non-timber resources, and illegal logging. The act covers other forms of offenses regarded as forest crimes including arson, grazing, illegal entry and damping of toxic substances, hunting, illegal plants and so on. The act makes it an offence to also possess charcoal in state, local, or provisional forests (Mathu, 2007). Forest enforcement agencies face numerous challenges in prevention, detection, and suppressing of illegal forest activities across the country (Blaser, 2010).

The KFS and the NCC use officers to curb illegal forest activities in the Maasai Mau forest, especially illegal logging, illegal farming, and human encroachment. Moreover, the officers also evaluate all applications for the utilization of forest resources to individuals, corporate bodies, and the communities. The final decision is made according to the provisions of the Forest Act of 2005 and the licences are issued accordingly. Assessing the license applications and monitoring the resulting activities helps in preventing forest-related crimes (GOK, 2014).

The various committees formed to manage the challenges facing the management of Maasai Mau Forest have come up with recommendations involving plans of action to ensure that the forest resources are protected and sustainable management practices are implemented. They included the prosecution of perpetrators of forest crimes, revocation of irregularly issued title deeds and the new excision of forest. Other sustainable plans included immediate plans to restore and regenerate the forest and eviction of the illegal farmers and settlers (Chebii, 2015).

2.5 Role of Community Forest Association Officials

Spruyt (2011) indicated that many countries have embraced the decentralization that the inclusion of many other bodies and stakeholders in the forest management practices ensures democracy and equity in forest conservation enabling more benefits to the local communities around forested areas. Kosgey, (2015) asserts that the idea of involving everyone in the management of forests through active participation of all stakeholders is common in most developing countries to manage and conserve forest resources. In general, the participatory forest management entails the local participation that involves a multi-stakeholder's approach. The stakeholders also share the benefits that accrue from their involvement in sustainable conservation and other management procedures the participation includes the policy formulation process and the implementation.

The establishment of the PFM in Kenya and other African countries resulted in the creation of community based organizations. The majority of CFAs seek to enter into partnership with other stakeholders in the forest management agreements. CFAs in different forests in the country join hands with the KFS to confer management roles to the community. The main responsibilities of the CFAs include various forest-related activities such as protection of the forest resources, re-afforestation, and conservation of the forest cover (Ongugo et. al., 2008). Further the role of protecting the forests by CFAs is in both the gazetted and non-gazetted forests in Kenya. This has led to the expansion of the services of such agencies as the CFAs to include lobbying to conflict management, forestry development activities, and fundraising and initiating rural development activities.

According to Wabusya (2014) donors and well-wishers in Kenya prefer to work with CFAs in establishing strategies aimed at conserving the trees and biodiversity. Additionally, the decentralization of roles to include the CFAs in forest management activities ensures efficiency and delivery of results from the local people. The increased level of local input helps the CFAs in achieving better targets in policy implementation. Chebii (2015) has indicated the new forest policy that encourages participatory forest management and the implementation of its principles has accrued tremendous achievement for the local communities. According to Koech (2009) the CFAs are responsible for informing the KFS

and the NCC of the issues affecting the forest management and conservation, the ideas raised by the local communities. Many organizations including the governmental and non-governmental organizations continue to make significant steps towards creating awareness and educating the communities living adjacent to major forests including the Mau Forest Complex.

According to Wabusya (2014) the CFAs efforts help the communities to understand the importance of the forest resources while protecting the traditional interests of the local communities around the forests. He indicated that those CFAs that have full registration also possess the rights granted by the KFS to undertake other tasks of the forest resources including controlled grazing, ecotourism and recreational. Koech (2009) on the other hand indicated that though the common challenges facing the CFAs within the Masaai Mau forest, the positive effects of their co-management with other stake holders helps in making a positive difference towards the forest management activities and sustainable conservation of forest resources.

2.6 Sustainable Conservation of Non-Gazetted Forests

The Sustainable Development Goals underline the need to balance objectives and potential trade-offs between poverty reduction, growth and sustainability. Goal 15:"Sustainably manage forests, combat desertification, halt and reverse land degradation, halt biodiversity loss" and Goal 13:"Take urgent action to combat climate change and its impact" place forest management and sustainability into the international development framework and underscore the importance of these objectives in both developing and developed countries. According to Downs, (2013) sustainable conservation is facing a lot of challenges globally. For instance, they considered conservation in Europe, the agencies face problems in identifying and verifying the legality of timber and other wood-based raw materials used by the forest products industry. Blaser, (2010) noted that Corruption and poor governance in addition to politics has led to unresolved crimes and unethical practices in government offices that prevents the agencies from executing their duties in forest management processes.

Mondiale, (2006) asserted that weak capacity and compromised institutions have prevented the law enforcement agencies from fully participating in forest crime prevention and suppression duties. Regionally, the law enforcement agencies face numerous challenges in an effort to successfully manage, conserve and rehabilitate forests. Various agencies in African countries in the Central and Southern Africa face flawed forest policy and legal frameworks that frustrate efforts to enforce laws to prevent forest crimes. Similarly, the agencies have inferior equipment's thus the enforcement members acquire insufficient information on forest resources, crime processes and the implementation of new laws and legislations. The lack of transparency, corruption and weak enforcement system also affect agencies across the East African Countries. Other challenges include weak communication gadgets, inadequate surveillance equipment and uncertainty surrounding land use and land-usage change (Blaser, 2010).

In his study Kamau, (2014) noted that the law enforcement agencies faced numerous challenges during the process of enforcing the forest laws in forests across the country. The Maasai Mau Forest complex was not an exception. Other crimes including clearing of vegetation for cultivation, arson and poaching were also experienced though there is lack of evidence it is a fact the law enforcement agencies faced numerous challenges during the implementation of the set forest laws and legislations. This has been attributed to a number of reasons such as lack of funding. Distinctive problems include inadequate funds for officers and other law enforcement agencies in the field, training among the enforcement agencies (Lambrechts, Gachanja & Woodley, 2005). Level of training on how to implement various laws is low. Agencies experience limited awareness and knowledge regarding the forest laws. The law enforcement agencies also face minimal participation leaving additional responsibilities for the agencies results in confusion and poor implementation of the existing laws. The failure to include communities adjacent to forests made it difficult for the agencies to implement some laws because of lack of cooperation from the neighbors (Nkako et al., (2005). Numerous forest conservation agencies face challenges related to inadequate and outdated forest policy that are weak and does not guarantee positive results on their implementation. The agencies also faced confusion that accrued from overlapping responsibilities that brought confusion during the

implementation and the enforcement of laws regarding conservation of the forests(Kamau, 2014).

Spruyt (2011) indicated that the law trains and allows the officers from various agencies to prosecute the criminals caught committing forest crimes. However, some crimes require thorough and complicated investigations in addition to a forensic laboratory. He further noted that the lack of the basic needs for comprehensive investigations leads to collapse of many forest crime cases. The agencies also experience inadequate operating funds that hinder the recruitment of additional staff members. The shortage in staff members deployed in the forests results in difficulties in thwarting all criminal activities in the forests. Currently, one personnel from a law enforcement agency oversees 650 ha of the forest. This leaves a large section of the forest unpatrolled every day. Consequently, the vegetation and trees are always at the risk of illegal activities.

The lack of basic equipment such as vehicles, aircrafts, binoculars, geographic information system (GIS) and radio calls provides a major challenge to the security agency members. The maintenance of the available tools and equipment is poor rendering majority of them unusable. The roads that give access to the susceptible areas of the forests are in bad conditions that hindering easy movement of the members of different agencies involved in the forest management activities. Other related challenges include technology and the lack of modern surveillance equipment and inadequate communication facilities. Poor communication and surveillance results in poor coordination of activities meant to curb forest crimes (Nkako et al., 2005).

2.7 Theoretical Framework

This study was guided by a number of theories that relates to forest conversion and the social aspect that triggers a behavioural syndrome that compels humans to engage in such behaviours. These section highlights such theories and their relations to the study topic.

2.7.1 Deterrence Theory

Deterrence theory as applied in this study assumes that stiff penalties or punishment of offenders will discourage both potential and repeat offenders from committing forest crimes. In other words, upon thinking about the imminent arrests and prosecution, the offenders can cease from contemplating to commit forest crimes. Though, for this to be effected, the law enforcers must be significantly vigilant in their roles. The fundamental questions for issues of law enforcement were posed by Becker (1968. p. 170) who, on recognizing the high costs of law enforcement dug into the question of how many offences should be permitted and the number of offenders that can go unpunished in that case. After a detailed analysis of the issue, Becker concluded that when a more significant penalty is anticipated for a crime (real penalty multiplied by the probability of detection and punishment), the deterrent effect on crime is higher and vice versa. Under a set of restrictive assumptions, Becker established that the optimal form of deterrence is achieved by setting high fines coupled with reducing the level of costly monitoring. The raising the probability of a fine is costly, since it requires devoting more resources to monitoring and apprehending individuals whereas raising the magnitude of a fine is costless (Malik 1990. p. 341).

It is vital to consider that fines for stealing of resources from parks and forests in less-developed countries are lower than the social cost, particularly for wildlife. In view of this, Abbot and (1999) state that it is because the fines are so low that the deterrence of illegal activities are minimal. The primary reason for existence of such low and ineffective fines is their non-wealth contingency attribute as stated by Bar-Niv and Safra (2002). Precisely, when wealth varies among individuals, raising the fine and proportionately reducing the probability of detection results in a lower deterrence effect for more impoverished individuals who cannot afford to pay the higher fines (Garoupa, 1997).

Given this, the wealth of people living adjacent to protected areas in developing countries tends to be very heterogeneous, with many impoverished people living close to these areas. For those who are not so much impoverished, fines may be relatively low, which in turn creates a scenario of little disincentive. For the poorest, even if the fines are high relative

to their wealth, they may have few alternatives to relying on resources from the protected areas, and so may continue to collect illegally whatever the punishment. Consequently, appropriate mechanisms of increasing the effective crime cost to the perpetrators of illegal forest activities is a currently a priority to many developing countries, especially areas where wealth-contingent fines are not feasible. Ideally, crime cost increment to convicts can be achieved through prison sentences, which impose a high cost equivalents regardless of social status. It is important to note that in regions with a slow judicial process, there is a low likelihood of ultimate conviction and imprisonment. Under such circumstance, the expected penalty and consequently, the effectiveness of enforcement efforts are undermined as a result of increased the administrative cost of prosecution.

2.7.2 Social Control Theory

This theory presumes that people are conformists and have all along co-existed with nature. Though, it raises a question of who is responsible for abating forest crime. Notably, although there is an attempt to conserve the Mau Forest through enforcement of the forest laws by various agencies, the community around the forests finds it hard to balance its support for the laws with its lifestyle because of gains from the forest. Downs (2013), supports the tenet of "*Moral Extensionism*" urging that engaging in environmental conservation is engaging in a moral issue. In view of this, the drive to put the non gazzetted parts of Mau Forest in control is an extreme moral issue since it helps in deterring the community from misusing the resources while limiting their access to their source of livelihoods. Ideally, the surrounding community views forest as their source of livelihood while conservationists view their encroachment into the forest as danger to both humans and the Mau Forest ecosystem. The increased levels of awareness help in making a significant difference in the existing forests, trees, and the communities.

The viewpoint of community support for forest laws in the management of non-gazetted forests in the country is compelling. Globally, individuals, organizations, and governments attempt to teach communities on the positive impact of protecting forests and its resources. This is an acknowledgement of the essence of forest law implementation agencies to get necessary support from the community (Reid, 2012). For example, in the USA and Europe,

awareness initiatives have resulted in innovation of different ways of sustaining protecting and managing the forests. In the USA, the National Association of State Foresters carries out an awareness campaign dubbed “My Tree—Our Forest,” meant to raise the public understanding about the benefits that healthy forests accrue to the communities across the country. The campaign also entailed increasing the society understands of the role state forestry agencies play in protecting the country’s urban trees.

In Africa, many countries have embraced awareness movements with a goal of promoting knowledge and conservation news to the communities and the benefits of managing forest resources. The drives encourage individuals and corporations to formulate and the implement regulations for sustainable management and forest conservation. The awareness programs also spread the information about illegal forest activities to the target communities including providing guidance towards preventing forest crimes and effective forest patrols to eliminate potential destruction of trees. Additionally, the public awareness campaigns also target issues such as deforestation, physical destruction of trees, biodiversity degradation, and natural calamities. As an illustration, in Malawi, the government implemented a program that sought to create awareness regarding the consequences of degrading the forests. The program raised the awareness of the communities through revealing a link between the status of the forest and their status of life in relation to lack of water, hunger, and poverty. In other words, the need for community support drives the management agenda to ensure that all the forest resources are effectively used whether they are gazzetted or not (Obare and Wangwe, 1998).

Creating awareness and capacity in relation to the functional aspects of forests and the value of the resources obtained for human well-being is crucial to the survival of the communities and the trees. Therefore, connecting the people of the country with the benefits of trees and forests enhances conservation of forested areas and other trees within their communities. The UK awareness campaigns engaged forest experts, education institutions, and community groups in local efforts to highlight the benefits trees provide. Likewise, through different agencies, the countries pass the message regarding deforestation, afforestation and degradation of tree cover and the need to restore the natural.

In Kenya, the government and other stakeholders carry out civic education on the role of the government, KFS, and NEMA includes the implementation of policies and strategies intended to protect the Maasai Mau forest cover and ensure re-afforestation process. There exist an urgent need to inform Kenyans and local communities on the need to manage and conserve forest resources, especially from the endangered Maasai Mau forest. Civil society and organizations such as the Greenbelt Movement commits resources to conserve and protect the Maasai Mau forest through awareness movements and drive tree planting initiatives. A lot of attention has been drawn to Maasai Mau Forest both national and international attention because of its exposure to human encroachment and destruction from illegal logging, farming, and charcoal burning (Kamau, 2014). Despite the persistent efforts to save the forest, the KFS complains of existing challenges of degradation owing to the lack of awareness and ignorance from the local communities (Blaser, 2010). A review of the forest laws in 2007 established an opportunity to raise awareness on the essence of conserving the forest. In line with the awareness objectives, the new drive to conserve the forest brought about the establishment of a group of community volunteers in the Mau, referred to as forest champions.

The KFS involves with the community representatives within the Mau Forest Complex in conjunction with the Ogiek People's Development Program in training the locals on the significance of forests to mitigate climate change and community development. Also, the KFS has allocated part of the community around the Maasai Mau forest the responsibility to conserve part of the forest resources as part of raising the awareness and safeguarding the natural resource. Hence, with the social control theory, the effectiveness of making the community more law abiding to assist in enforcing them for their own benefits is achieved. Consequently, despite the status of the forest in regard to the Kenya gazette and effectiveness of the law enforcement agencies, the community is brought on board in the effective management of the forest. Notably, community awareness about the importance of protecting forests encompasses active and meaningful sharing of information with different stakeholders to spread knowledge, skills, and encourage the behaviour that promotes the protection and conservation of forests (Spruyt & Stroeken, 2011).

2.8 Conceptual Framework

This study theorized the effect of forest management activities in terms of enforcement of forest laws, Sustainable re-afforestation practices, and Levels of CFA officials' participation as independent variables. The researcher argues there is a direct relationship between Forest Management activities namely Re-afforestation and sustainable conservation of non-gazetted forests. This direct relationship is also experienced with productive Law Enforcement activities and enhanced CFAs Participation. However, the Public Forest Management Policies, Global Trends in Forest Management, financial resources, Political goodwill and synergy between National and County government intervene in this relationship as specified below.

Figure 2.1: Conceptual Framework

This study conceptualized the activities of forest management as the independent variable and sustainable conservation as the dependent variable. Precisely, the study identified three key factors that influence sustainable conservation as Sustainable re-afforestation practice, forest laws enforcements, Levels of CFA participation on importance of Forest conservation. According to Mathu (2007), these three factors directly influence forest conservation and management. Further, the study further identified five indicators of sustainable conservation of non gazetted forests namely; deforestation measures, the number of sanctions' and control of forest activities, forest management training frequency and increase in forest cover.

The study presupposes that the above four independent variables have both individual and collective relationship with the dependent variable (sustainable conservation of non-gazetted forests). However, the intervening variables namely Government Forest Management Policies, Global Trends on Forest Management, Forest management financial resources, political goodwill and synergy between Kenya National Government and Narok County Government on aspects of Forest Management co-act with the independent variables to cause sustainable conservation of Non-Gazetted Forests.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This section contains details about the methodology adopted for the study that includes description of the study area, design for the study, how sampling of the population was undertaken, techniques utilized in the collection of data chapter and how the analysis of the data collected was done.

3.1.1 Site Description

The Mau Forests Complex is one of the most extensive natural forest sin existence in Kenya and in East Africa as a whole. The forest is subdivided in to five main reserves namely; Eastern which covers an area of 66,000 ha, Western 22,700 ha and South-western Mau 84,000 ha, Trans-Mara covers 34,400 ha and OlPusimoru which is the smallest covers 17,200 ha. A sixth large block which has not yet been gazzeted is the Maasai Mau with an area of 46,000 ha. Approximately 59,134 ha was designated for degazettement with no valid explanation. This is estimated to bring more than 100,000 ha of the forest under de-gazettement (BirdLife International, 2017).

The Mau forest sits on a trust land and has the highest number of tree and small animal species in the country. The high cover of forest grass and the bamboo thickets gives the forest the naturalist characteristic. The most recent challenge is the including politicization of the reserve (the resettlement of the communities in the forest). There has also been massive and destructive logging especially in areas of the forest that are rich in biodiversity (Birdlife International, 2017).

3.2 Research Design

Research design is defined by Kothari (2004) and Creswell (2009) as a plan and procedure for the research process. This study was descriptive and cross-sectional in nature. The cross-sectional research design is the most predominant design employed in the social sciences. The design is identified with survey research a method of data collection in which researchers usually ask a random sample of individuals to respond to a set of questions

about a particular phenomenon. Such researches are carried out in natural settings and permit the researcher to use random probability sample. The researcher is able to make inferences to broader populations and permits them to generalize their findings to real life situations thus increasing the external validity of the study.

3.3 Unit of Analysis

A unit of analysis is an object of study that is to be critically examined. It is further observed by Mugenda and Mugenda (2003) that a unit of analysis refers to what or who can be studied. For purposes of this study, the unit of analysis is the efforts taken by forest conservationist to protect Mau forest form encroachment.

3.4 Unit of Observation

Units of observation refer to the subject, cases or entity from which a researcher estimates the attribute of, or obtain the data needed in the study. Hence, the units of observation in the present study are current the Kenya forest service officials, the county rangers' officials, and the local administration such as chiefs and sub-chiefs.

3.3 Target Population

Based on the objectives of the study, it was deemed appropriate to consider the forest law enforcers as the target population namely Kenya Forest Service, Kenya Police and Forest Society of Kenya officials, Local Administration, CFAs officials and County Rangers since they have a lot of documented information concerning the research topic. From a target population of 294 Narok County Forest Management Teams 143 respondents were picked to form the sample population as indicated in table 3.1 below.

Table 3.1: Target Population

Law Enforcement Agency	Population Size	Sample Size
KWS	47	24
KFS	97	46
County Rangers	30	15
CFA-Officials	100	50
Chiefs	20	8
TOTAL	**294**	**143**

3.4 Sample Size and Sampling Procedures

The study adopted stratified random sampling, a non-probability sampling procedure, which also suits the study research design. The adopted procedure assisted the researcher to divide the obtained population of KWS, KFS, and county rangers' officer into smaller groups known as strata. The strata were developed based on members' shared attributes or characteristics. In this study the researcher categorized the target population into: KWS; KFS; County Rangers; CFA officials and Chiefs. The survey, therefore, applied the Fisher et al (1998) principle of sample stratification in a bid to develop an appropriate sample size. This principle was used to determine the minimum numbers of participants to be help answer the structured questionnaire (Appendix 11) for each of the obtained target groups. It was suitable for the study to satisfy the minimum 95% requirement for validity and reliability. Owing to the assumed heterogeneity of the study target population groups, a design effect of 1.5 was used. The Fisher et al (1998) formula is illustrated below:

$n=Z^2pqD/d^2$

Where:

n= the desired sample size;

Z= the standard normal deviation, (1.95) which corresponds to the 95% confidence interval

P= the proportion of the target population estimated to have a particular characteristic (p=estimated, 0.25 was used);

Q=1-P =0.5; D=the design effect, usually 1.5

d=the degree of accuracy, which is 0.05;

$$Thus, n = \frac{1.95^2 * 0.25 * 1.5 * 0.25}{0.05^2} = 143\ Respondents$$

Therefore, Fisher Method helped to obtain a random sample size, in each of the target population of KWS Officers, County Ranger's officers, and KFS officials. The selection of the during fieldwork was purposive, targeting officials who mainly have knowledge of the study topic to easily help to obtain the research objective. Also, each were randomly conducted to fill to survey questionnaire. Through, the help of village managers and local administration. The study adopted purposive sampling where fisher (1998) formula was used to obtain the appropriate total sample of 143 from each of the target, as presented in table 3.2, overleaf.

Table 3.2: Study Sample Size

Target Group	**Sample Size**
KWS	24
KFS	46
County Rangers	15
CFA-Officials	50
Chiefs	8
TOTAL	**143**

3.5 Data Collection Method and Tools

After undertaking training and confirming each subject to be sufficiently competent to participate in the investigation, five research assistants were employed to assist in data collection phase. Each member of the data collection team was taken through a two-day training on the use the questionnaire and interview schedule instruments. After the training, the research assistants were tested orally to ascertain their level of knowledge the concepts under investigation.

3.6 Validity and Reliability of the Instruments

Validity shows the degree to which a research instrument measures what it purports to measure (Mugenda and Mugenda, 2003). Hence, it ensures that there is a scientific usefulness of the findings obtained from a study. Research tools were well thought out in consultation with the University supervisor. The accuracy of question items was highly checked to convey the same meaning to all respondents.

Reliability of research instruments is important to any study. It means the ability of a research instrument to yield constant results over time especially after replicated studies have been undertaken. The instruments were administered twice at different intervals in order to examine the degree of internal consistency of the responses. Using the the Cronbach's Alpha coefficient reliability test of the instruments was undertaken and resulted posted as indicated below in Table 3.3.

Table 3.3: Reliability Statistics

Objectives	Cronbach's Alpha	N of Items
Overall Reliability	.883	41
Forest Law Enforcers' level of Success	.824	7
Involvement of the Community	.850	9
Re-afforestation Activities	.861	8
Community Aware	.935	8

Source: Survey data 2018

Table 3.2 presents the four objectives under which the study obtained a reliability coefficient of 0.7 and above as recommended. In addition, the overall reliability of the instrument was 0.883 while the reliability for the rest of the objectives was above 0.8, implying that the research model was suitable for the research.

3.7 Data Analysis and Presentation

According to Tromp and Kombo (2007) data analysis entails the process in which the collected data assessed to obtain relevant information. Particularly, the process entails

finding fundamental structures, extracting essential variables, noticing any irregularities and testing any fundamental assumptions. Further, it encompasses examining the obtained information and creating interpretations.

This study utilised descriptive statistics to analyse obtained data. Descriptive statistics entails the collection, organisation, and analysis of all data relating to some population or sample under study. According to Breakwell (2006), descriptive analysis enables the presentation of data in form of frequency tables, graphs, and pie charts. Qualitative data were analysed thematically to detect patterns, categories, and recurrent themes.

3.8 Ethical Considerations

I this research, there was compliance with the principles protecting the dignity and privacy of every respondent who were compelled to provide the important data (hereinafter referred to as a subject of research).

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

In this section all the findings after conducting the analysis of the data is provided. Basing on the objectives of the study namely; to ascertain if re-afforestation activities have been undertaken in Maasai Mau Forest; to establish the extent to which Forest Law Enforcement Agencies have succeeded in protecting the Maasai Mau Forest and to ascertain the level of CFAs participation in Maasai Mau Forest management.

4.2 Response Rate

The response rate represented a return rate of 74% indicating a good representative of the sampled respondents. Babbie (2003) indicated that when a response rate is more than 70% then the results can be accepted as an accurate representation of the entire sample. The study therefore accepted the 74 % as an appropriate response rate for this study. It was also noted that the non-response rate of 26 % could be because the concerned officers were out of their station for official duty at the time of picking up the completed questionnaires. The response rate is presented in the table 4.1 below.

Table 4.1: Law Enforcement Agency

Law enforcement agencies	Total	Count	Percent response (%)
KWS; KFS	72	55	51.4
County Rangers	15	11	10.3
CFA officials	50	34	31.8
Chiefs	8	7	6.5
Total	**145**	**107**	**74%**

4.3 Demographic Variables

4.3.1 Respondents Characteristics

Where gender, level of education and years lived in the area were sought. These demographic variables are essential in a social study because they have an influence on the

opinion and views presented by categories of respondents. Gender was an essential aspect in this study since it helped capture the views of men and women in regard to the study. Though women are less actively involved in issues of protection and /or conservation of land it was vital to get their views on forest management. The results were presented in Table 4.2.

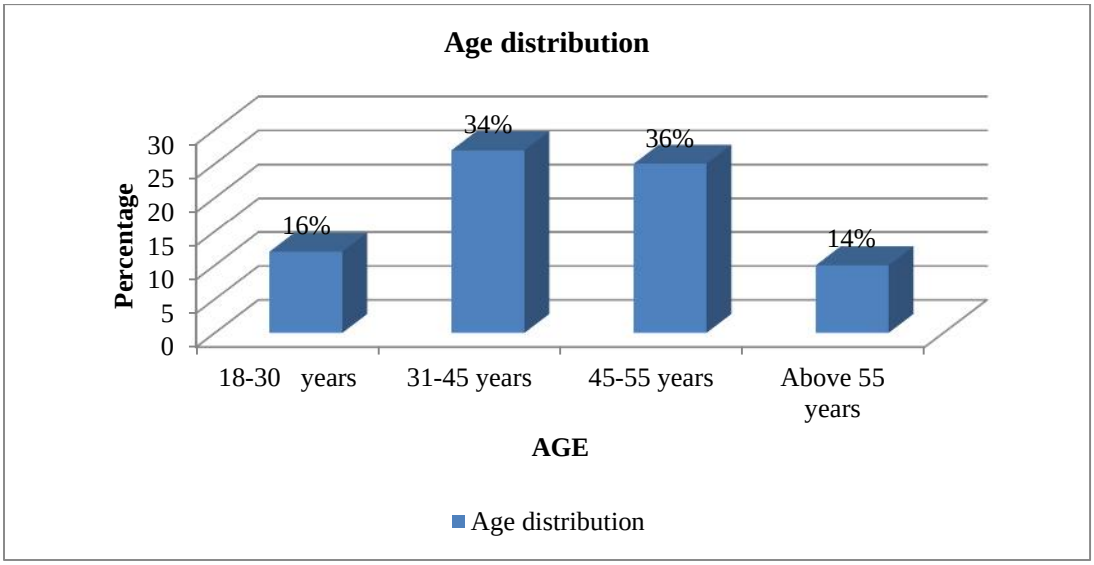
Table 4.2: Gender of the respondents

Gender	Frequency	Percentage (%)
Male	76	71
Female	31	29
Total	107	100

Majority of the respondents (71%) according to the findings were male while only 29% were female. This is because male are heavily involved land issues and forest conservation as compared to women. Consequently, they are more available at the time of the study and were more involved than women in matters of forest management and conservation.

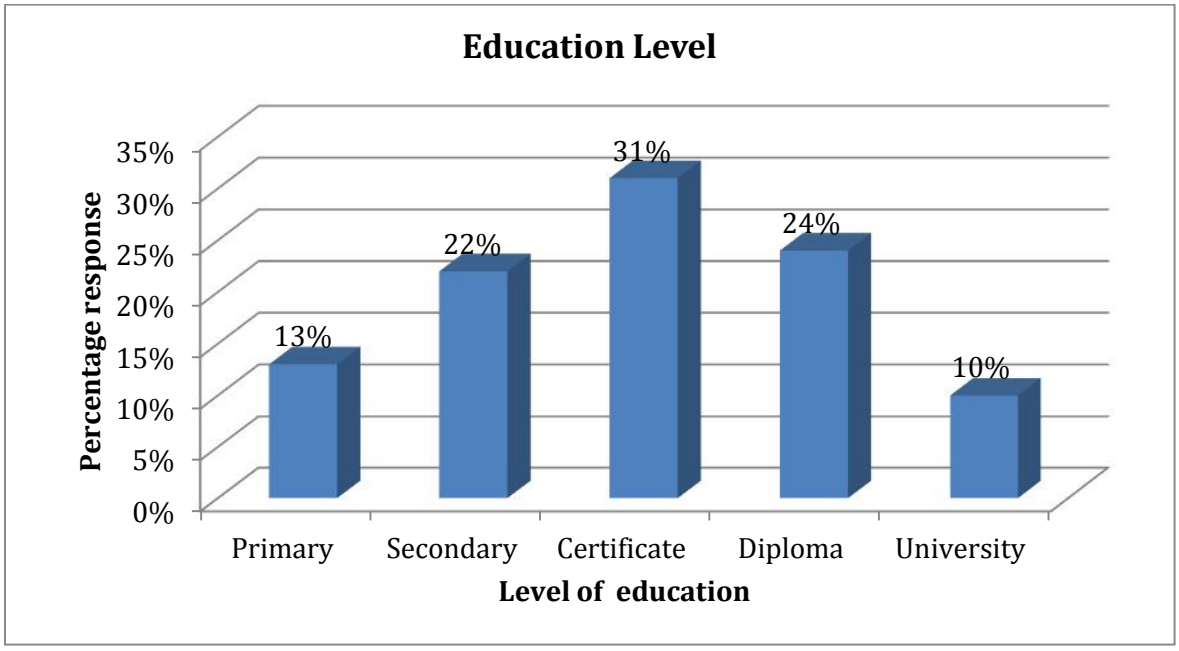
In relation to the age of the respondents as shown in the graph below shows that the views and opinion of most of the people in the population were captured in the study.

Figure 4.1: Age Distribution



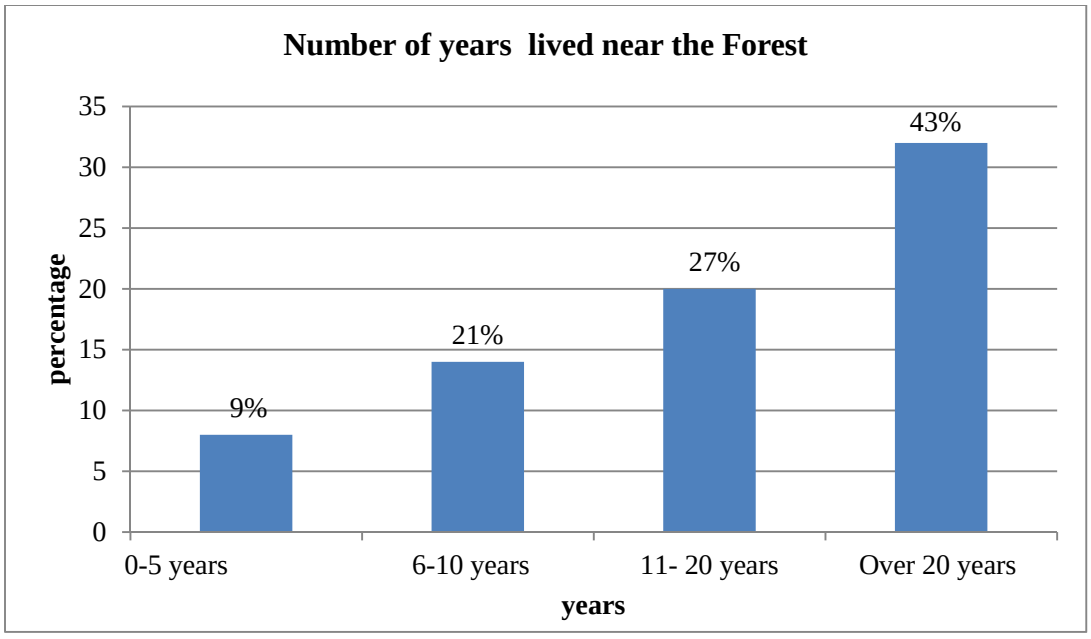
Education levels of the respondents was also crucial since it has an implication on the level of understanding of the effect of deforestation in the area. It also has an influence on the type of occupation, in the sense that a population that has a higher formal education tend to have other occupation options to undertake other than stay in the community and engage in manual work that leads to forest degradation by the residents. The results were presented in figure 4.2.

Figure 4.2: Education Level



The results on literacy levels were considered since it influences on the knowledge and understanding of the respondents. From the study findings high literacy levels was recorded from the respondents showing good understanding of the subject matter. Specifically, 31% had certificate qualifications, twenty four percent had Diploma qualifications, and twenty two percent had secondary education. Only 13% had attained primary level of education. Only 10% of the participants had attained University Education.

Figure 4.3: Years Lived near the Forest



In relation to years lived near the forest a very significant proportion of the respondents 43% lived around the forest for more than 20 years, thus implying that they were informed and qualified to give views on forest activities and the level of deforestation. It shows that 27% of the respondents had lived around the forest for between 11-20 years. The remaining 21% and 9% had lived around the forest for 6-10 years and 0-5 years respectively. This shows that those respondents who participated in the study had adequate knowledge on forest management activities which the focus of this study as shown in figure 4.3 above.

4.4 Key Findings

Findings related to the objectives of the study are highlighted here namely: perceived level of re-afforestation, rate of enforcers' success, and CFA participation in forest management.

4.4.1 Perceived Level of Re-Afforestation

One of the key activities in forest conservation is the process of re-afforestation. This study considered various re-afforestation activities including; the planting of trees, training programs, assisting the community understand effective methods of using the forest to enhance their livelihood. The results are presented below.

On whether the community is involved in the process of planting trees as a way of managing the forests, opinion of respondents was sort using a likert scale where; 5 = Highly Satisfied (**HS**), 4 = Satisfied (**S**) , 3= Unsure (U**N**) , 2= Least Satisfied (**LS**) and 1= Very Dissatisfied (**VD**) and views given as shown in Table 4.3 below.

Table 4.3: Community Involvement in Tree planting

Enforcement Agencies	**Response**	**Very Dissatisfied**	**Least Satisfied**	**Total**
KWS; KFS	%	16.4	83.6	100
County Rangers	%	27.3	72.7	100
CFA officials	%	17.6	82.4	100
Chief	%	14.3	85.7	100

The results indicate 83.6% of the interviewed respondents from KWS and KFS were satisfied to a small extent and 16.4% were not satisfied at all in their involvement of forest conservation process. Also 72.7% respondents of county rangers were least satisfied on the community involvement in the forest conservation measures. Similarly, 82.4% of respondents from CFAs and 85.7% were least satisfied on the community involvement in conservation exercise. This implies that the agencies were not satisfied at how the re – afforestation was being done through the initiative of planting trees.

Sessional Paper No. 1 of 1968 aimed at offering the government with guidelines for provision of funds for policy implementation; designate the County Council forests and the establishment of private forests. When these provisions are reviewed by the law enforcement agencies, it clearly provides a scenario of high level of dissatisfaction as many of these provisions have not been implemented leading to degradation of the forests by the very communities that are to conserve them.

The study also sought to establish whether program to equip farmers and smallholders' appropriate methods for conserving the forest. The various agencies and respondents asked to give their views as shown in Table 4.4 below.

Table 4.4: Programs Equipping Smallholder Farmers with Appropriate forest conservation Methods

Enforcement Agencies	Response	Very Dissatisfied	Least Satisfied	Total
KWS; KFS	%	63.6	36.4	100
County Rangers	%	100.0	0.0	100
CFA officials	%	79.4	20.6	100
Chiefs	%	85.7	14.3	100

Table 4.3 indicates that 63.6% of respondents from KWS and KFS were not satisfied at all and 36.4% were least satisfied with the programs that were used to equip the smallholder farmers with appropriate conservation methods. They cited the *shamba* system as a failed conservation method because not everybody who was licensed for the system had good will for the project. Similarly, 100% of the respondents from county rangers were not satisfied at all with the programs in the sense that the programs had no impact on the conservation of the forest and hence did not see need of those programs.

Similarly, 79.4% and 85.7% of the respondents from CFAs and Chiefs felt that the local communities were not committed in the conservation efforts making the entire process not to be effective. This implies that the respondents from all the four agencies were not satisfied with the programs being offered to enhance participation of the communities and smallholder farmer's appropriate use of the forests by the communities.

Initially, the introduction of *„shamba"* system was meant to engage the members of the community neighbouring the forests, but this was not to be primarily in the Mau Forest. Maasai community are either hunters and gatherers who gather food from nearby forests. Also the community practice pastoralism mostly indigenous cattle and goat and most of their grazing land are in the forest cover. Further, they have little interest on farming activities. The communities that came to practice the "*shamba"* system therefore came from other parts of the country.

Regardless of the Sessional paper effort to protect the forest it brought into the forest a group of people who were not keen on either preserving the forest or leaving the forest.

This is among the many explanations as to why the law enforcement agencies that took part in the study were not satisfied with the conservation programs in place. In most developing countries the literature indicates the need to involve local community in forest. This is in support of Matiku et al (2013) who noted that though efforts can be seen on the conservation initiatives of forest in developing countries but, a lot still needs to be done to make the process effective.

On whether the community has access to the use of forest resources to meet their basic need such as food, firewood and building material it was noted as follows from the respondents where 5 = Very Satisfied (**VS**), 4 = Satisfied (**S**), 3= Neutral (**N**) , 2= Not Satisfied (**NS**) and 1= Very dissatisfied (**VD**) as shown in Table 4.5.

Table 4.5: Community Access to Forest Resources

Enforcement Agencies	Response	VD	LS	UN	S	VS	Total
KWS; KFS	%	29.1	29.1	5.5	21.8	14.5	100
County rangers	%	45.5	9.1	18.2	18.2	9.1	100
CFA officials	%	29.4	14.7	8.8	32.4	14.7	100
Chiefs	%	14.3	57.1	14.3	0.0	14.3	100

29.1% of the respondents from KWS and KFS were very dissatisfied and a similar number were least satisfied with the level of community access to forest resource. Also 45.5% of the respondents from among the County Rangers were very dissatisfied with the community access to forest resources. On the other hand 29.4% of participants from the CFAs group were satisfied at all and 32.4% were satisfied with community access to forest resources. 57.1% of the respondents from Chiefs were least satisfied with the process. This shows that there are mixed reactions on the extent to which forest resource access leads to forest conservation.

Dissatisfaction by the agencies that participated in the study arose since the Forest Act Cap 385 of 1942 which was supposed to define the level of involvement by the communities in the forest conservation process however the political class took over and benefitted themselves and their kinsmen leaving the communities with minimal role to play in forest management. This is also supported by the work of Ribot (2004) who noted most plans employed to conserve the forest by the government through the various agencies were not bearing fruits because the communities around the forests are still not empowered and hence any opportunity they are given to use the forest will be misused as they are striving to make their ends meet.

On whether making tree seedlings available to the community members were considered as a program in enhancing the forest conservation program it was noted as follows.

Table 4.6: Availability of Tree Seed Orchards

Enforcement Agencies	Response	VD	LS	UN	S	VS	Total
KWS; KFS	%	21.8	36.4	5.5	14.5	21.8	100
County rangers	%	9.1	36.4	18.2	18.2	18.2	100
CFA officials	%	20.6	35.3	8.8	2.9	32.4	100
Chiefs	%	14.3	57.1	14.3	14.3	0	100

36.4% of the respondents from KWS and KFS were least satisfied and 21.8% of the respondents were not satisfied at all with how tree seed orchards were being run. Also 36.4% of respondents from county rangers were not satisfied with the process of forest conservation since there were no tree seed orchards for supplying the re-afforestation materials to the communities and other agencies for conservation. Similarly, 35.3% and 57.1% of the respondents from CFAs and Chiefs were least satisfied with forest

conservation process because of lack of appropriate orchids seeding for carrying out the program. From the above findings it is established that tree seed orchards were not available and if there was any, they were not sufficient. The findings clearly indicate that this program is not likely to succeed since the lack of seedling for planting makes it difficult to implement de-forestation.

In Table 4.7 below the results on the effect of community training and the benefits of re-forestation are presented.

Table 4.7: Community Training on the Benefits of Re-afforestation

Enforcement Agencies	Response	VD	LS	UN	S	VS	Total
KWS; KFS							
	%	23.6	32.7	18.2	18.2	7.3	100
County rangers							
	%	27.3	18.2	18.2	27.3	9.1	100
CFA officials							
	%	20.6	32.4	11.8	26.5	8.8	100
Chiefs							
	%	14.3	28.6	28.6	14.3	14.3	100

From the findings in Table 4.7, most respondents 32.7% from the KWS and KFS were least satisfied followed by 23.6% who were not satisfied with the statement. The reason behind this was that there were no community training programs to sensitize the community members on the benefits of conserving the forests despite the provision of the forest act for this sensitization to be done.

A similar view was observed for the other agencies that is; the county rangers 27.3% were not satisfied, for the CFAs 32.4% were least satisfied and lastly, 28.6% of the respondents were least satisfied with the statement. This indicates that community training on the benefits of the forest is not satisfactory. This agrees with most reports from developing counties that there are little benefits obtained from the forests by communities and individuals due to the poor structure of the community training programs. The findings resonate with the findings of Alhassan (2010) who noted that the programs initiated to

assist in sensiti5zing the communities on the benefits of the re-afforestation have not served the interest of the conservation process among the local communities.

Table 4.8 below presents responses on whether the degree of dependency on the forest resources by neighboring communities affects the conservation process.

Table 4.8: Degree of Dependency on Forest resources by neighboring communities

Enforcement Agencies	Response	VD	LS	UN	S	HS	Total
KWS; KFS							
	%	36.4	20	16.4	10.9	16.4	100
County Rangers							
	%	54.5	18.2	9.1	9.1	9.1	100
CFA officials							
	%	52.9	17.6	5.9	14.7	8.8	100
Chiefs							
	%	28.6	28.6	28.6	14.3	0.0	100

From the total 36.4% respondents from KWS and KFS were not satisfied at all with the process, 20.0% were least satisfied with the degree of dependency by the communities neighboring the forests to enhance the conservation process. This is because most of the neighboring communities tend to misuse the benefits of the forests. Similarly most county rangers, 54.5% were not satisfied at all and 18.2% were least satisfied, while, 52.9% CFAs respondents were also not satisfied at all and 17.6% were least satisfied with the process of conservation. Of the Chiefs 28.6% were not satisfied at all with involvement of neighboring communities in the forest conservation exercise. This level of dissatisfaction by the agencies can be attributed to the provision of the forest Act 1968 which gave guidelines on the activities taking place in the forest that involved the community was to be handled.

Utilization of forest resources by the local community for subsistence such as collection of wood fuel, grazing, collecting of medicinal plants and honey gathering amongst other activities. These activities, according to the Act, were to be permitted through issuance of a permit from the local forester at a minimal fee. This process of providing the permits was

also not transparent and hence affected its effectiveness. The procedure of approving and issuing these permits is questionable as most people who are given the permits are not even those living adjacent to the forests.

It was noted local communities take advantage of the access to the forest to do other activities like logging and grazing and in the process the efforts of conservation are reduced. The work of Ribot (2004) established a similar case and indicated that there is minimal benefit that accrue to forest conservation by allowing access to the forest by local communities since they lack the skills and knowledge on how to conserve the environment the aims are very minimal.

On whether politics interferes with the reforestation efforts the responses are presented in Table 4.9 below.

Table 4.9: Political Confrontation Interferes with Re-Forestation Activities

Enforcement Agencies	Response	VD	LS	S	HS	Total
KWS; KFS	%	10.9	14.5	16.4	58.2	100
County Rangers	%	9.1	0.0	9.1	81.8	100
CFA officials	%	14.7	2.9	11.8	70.6	100
Chiefs	%	14.3	14.3	14.3	57.1	100

Findings show 58.2% respondents from KWS and KFS strongly agreed that politics interferes with the many re-afforestation practices in the sense that the political class in government lacked the political will to enact and implement laws and policies to foster the conservation process. It was noted that politics affects the way laws and regulations on forest conservation are enacted. The politicians have used the forest for their own political gains and hence this has affected the efforts of the law enforcement agencies in ensuring that re-afforestation practices are effectively undertaken. This proves that the Mau Forest lad excision was more motivated by political interest than settling of the landless and that politics contributed to a large extent toward the destruction of the Mau Forest.

A similar opinion was held by the county rangers of whom majority 81.8% strongly agreed that politicians contribute to destruction of forests by sabotaging the forest conservation practices for their own political interests. Similarly, 70.6% and 57.1% of respondents from CFAs and local administrators also strongly agreed that there was political interference in the effectiveness of forest conservation activities. This agrees with other similar studies in African contexts , a study by Soi (2015) In the national debates most Rift valley leaders declared political war on any one who supported the eviction of people from the Mau forest.

Most political leaders are opposed to arbitrary eviction of families illegally settling in the Mau Forest before the government crafted a compensation plan or an alternative settlement scheme. In a nutshell, political leader have used the Massai Mau forest for their own interests. The Rift Valley politicians, though they acknowledged of the importance of Mau Forest, could not devote their resources into forest activities since in their view it did not serve neither their political nor financial gains. Desoite the enactment of the forest Act 2005 in Kenya was aimed encouraging unity of purpose and involvement of the local community through CFAs. There is need to engage them at policy levels and reduce instances of dictating to them as a government. Blaser (2010) also has it that the war on deforestation cannot be won by the government agencies alone, without involving the communities adjacent to the forests, the support from these communities geared towards proper establishment and implementation of forest management activities.it is sad to note that most of the land that was excised from Mau forest in the name of resettling the landless ended up benefiting those people who were politically connected. This shows how politics interferes with the conservation efforts of most forest resources.

4.4.2 Level of Success of Forest Enforcement Agencies in Protecting Mau Forest

Another critical aspect that was the focus of this study was the extent to which forest enforcement agencies have succeeded in Mau forest protection as presented below.

Table 4.10: Preparing and Implementing Management Plans for all Public Forests

Enforcement Agencies	Response	VD	LS	S	HS	Total
KWS; KFS	%	65.5	20.0	7.3	7.3	100
County Rangers	%	72.7	27.3	0.0	0.0	100
CFA officials	%	70.6	17.6	5.9	5.9	100
Chiefs	%	57.1	14.3	28.6	0.0	100

Level of dissatisfaction on how management plans on the conservation of the forests were being prepared and implemented was high. Among KWS and KFS 65.5% were not satisfied with only 7.3% indicating that they were satisfied. Among the county rangers 72.7% were not satisfied while among the CFAs and Chiefs 70.6%, and 57.1% respectively indicated that they were not satisfied with the preparation and implementation of the plans for the public forests. This implies that the enforcement agencies were not satisfied with the way the public forests management plans were being prepared and implemented, for instance the *"shamba system"* which was supposed to ensure that the forests are effectively managed by allowing the local communities cultivate crops as they tend to the forest vegetation.

It was also noted that since the political class in government lacked the political will to enact and implement laws and policies to foster environmental conservation. Matiku *et al.* (2011) also noted that the enforcement agencies are sometimes never involved in the drawing of the management plans that they are required to implement. The lack of participation in the process makes it difficult for them to effectively enforce the plans.

In determining the level of satisfaction of the forest law enforcing agencies with the level of capacity building among community members and private landowners on forestry conservation process the following was noted in Table 4.11 below.

Table 4.11: Capacity Building level of Local Communities

Enforcement Agencies	Response	VD	LS	UN	S	HS	Total
KWS; KFS	%	61.8	21.8		1.8	14.5	100
County Rangers	%	63.6	0.0		0.0	36.4	100
CFA officials	%	70.6	17.6		0.0	11.8	100
Chiefs	%	42.9	28.6		0.0	28.6	100

Dissatisfaction levels were high on capacity building programs for communities living adjacent to the forest, and other private land owners was being conducted in the area of study . Among the KWS and KFS 61.8% were not satisfied, among the county rangers 63.6% were not satisfied, among the CFAs 70.6% were not satisfied, among the Chiefs 42.8% were not satisfied. This implies that the forest law enforcement agencies were not satisfied with the way capacity building be for the forest conservation among the communities and the other private land owners living adjacent to the forest was being conducted .

They attributed the low success in protecting the Maasai Mau forest to lack of a common agenda between the local communities, private land owners and the law enforcement agencies. This supports the findings by Matiku et al. (2011) who also noted that there is a disconnect between the capacity building for forest community and the private land owners surrounding the Mau forest and this makes it very difficult have the law enforcement agencies succeed in their task of protecting the forest. It was also essential to establish whether the law enforcement agencies were satisfied with the enforcement of the provision of the Forest Act of 2005 as indicated in Table 4.12 below.

Table 4.12: Enforcement of Forest Act of 2005 Provisions

Enforcement Agencies	Response	VD	LS	UN	S	HS	Total
KWS; KFS	%	58.2	27.3	9.1	3.6	1.8	100.0
County Rangers	%	45.5	27.3	18.2	9.1	0.0	100.0
CFA officials	%	64.7	23.5	5.9	5.9	0.0	100.0
Chiefs	%	42.9	28.6	28.6	0.0	0.0	100.0

Law enforcement agency from the four agencies; joint enforcement, county rangers, CFAs and local administrators were not satisfied with the statement as shown from their responses 58.2% , 45.5% , 64.7% and 42.9% respectively. According to the respondents, the act was aimed at giving the law enforcers powers to deal with all sought of acts against the provisions. For instance the act was aimed at giving the Kenya Forest Services (KFS) semi autonomy to run forest affairs. The situation has instigated challenges among the enforcement agencies that are supposed to assist the KFS in enforcing the law and ensuring that the forests are managed and prevented from any further destruction.

The law enforcement agencies have a problem with the enforcement of the provision of the Forest Act of 2005; they indicated that it is not only lack of proper government policies and laws that fail the forest conservation process. The major challenge is lack of proper functioning institutions through which the law is supposed to be enforced that fail to stop over-exploitation of forests. They further noted that the political economy of the state that emphasizes on more land accumulation and a development that favours forest destruction is the undoing of forest preservation and conservation. These are the main issues of the ACT that makes these law enforcement agencies very unsatisfied. Matiku *et al.* (2011) noted that in Kenya the government enacted the Forest Act provisions in order to promote protection and conservation efforts of forests. However there appears to law enforcing agencies are facing a challenge from the laxity of the KFS to assist in prosecuting the law breakers who interfere with forest management efforts.

In relation to enforcement of any other forestry and land use rules and regulations it was noted as follows in Table 4.13 below.

Table 4.13: Enforcement of Other Forestry and Land Use Rules and regulations

Enforcement Agencies	Response	VD	LS	UN	S	HS	Total
KWS; KFS	%	54.5	30.9	5.5	1.8	7.3	100
County Rangers	%	54.5	18.2	9.1	18.2	0.0	100
CFA officials	%	55.9	29.4	8.8	0.0	5.9	100
Chiefs	%	42.9	14.3	14.3	0.0	28.6	100

Most of the law enforcement agencies were also not satisfied with the enforcement of other forest and land use rules and regulations. Since the law enforcement agencies are not usually involved in the enforcement of these regulations it makes it difficult for them to fully take the responsibility of enforcing these rules. The efforts to bring the perpetrators to book and open charges against them are always frustrated. This discourages them from doing their work effectively. 54.5% respondents from the KWS and KFS group were not satisfied , 30.9% who were least satisfied and only 7.3% being highly satisfied with the efforts so far. It is further noted that 54.5% among the county rangers were not satisfied followed by 18.2% who were least satisfied while 18.2% were reasonably satisfied with the enforcement of rules and regulations.

It is further noted that CFAs and local administrators also shared a similar view that most of the rules and regulations pertaining to the management of the Mau forest are not adequately enforced as most of them 55.9% and 42.9% indicated that they were not satisfied at how the process was being done. This implies that the law enforcement agencies were not comfortable at how the forest rules and regulations were being enforced in most of the forest areas.

They blamed the weakness in the Act that is supposed to empower them to carry out their duties effectively and ensure the accused people are prosecuted. Lack of support from the

government agencies was also considered a draw back to the effective implementation of the rules and regulations governing forest management.

According to Schreckenberg *et al.*, (2007) the duty of the law enforcement agencies to ensure that the rules and regulation on forest protection and conservation and the guidelines on the use of forests land are effectively enforced. However they further noted that the agencies in place lack the powers to prosecute and ensure that the perpetrators are charged in court. This frustrates their efforts in enforcing the forest rules and regulations hence they are not satisfied with the support they get from other law enforcement agencies. This implies that the lack of effective framework and institutional structure for the KFS contributes significantly to the level of satisfaction by the law enforcement agencies in enforcing of other forest rules. The most discouraging situation is where the political class through other government agencies are involved in illegal activities within the forest resources.

The study also sought to establish whether the agencies were useful in investigating, making arrests and pursuing prosecution procedures while dealing with suspects in the forest law enforcement process as shown in Table 4.14.

Table 4.14: Law enforcement Activities

Enforcement Agencies	Response	VD	LS	UN S	HS	Total
KWS; KFS	%	74.5	16.4	7.3	1.8	100
County Rangers	%	81.8	18.2	0.0	0.0	100
CFA officials	%	85.3	5.9	8.8	0.0	100
Chiefs	%	57.1	14.3	28.6	0.0	100

From the findings in relation to investigations, arrests and prosecution of culprits involved in the violation of forest law 74.5% of KWS and KFS were not satisfied as well as 81.8 % of the county rangers and 85.3% of the CFAs were not satisfied while Chiefs were 28.6% reasonably satisfied. This implies that there is laxity from the police who are involved in

the investigation of the cases hence none of the culprits have been prosecuted. The dissatisfaction is therefore likely to leads to laxity from the law enforcing agencies who feel that their efforts in enforcing the law are not appreciated since very few suspects are prosecuted because they are protected by other people in high authorities.

Matiku et al. (2011) also noted that though in Kenya the government has been on the forefront in curbing forest destruction and limiting encroachment. The efforts have had minimal effect as a result of rigidity and non-inclusivity of the various agencies involved in the process. There is evidence of weak law enforcement systems which are unable to arrest, investigate and prosecute those arrested. This has made it impossible to stop encroachment in forested areas such as Mau forest. Other factors that have watered down the efforts of the law enforcement agencies Coupled with other factors including politics, lack of sensitization of the community on obtain alternative energy sources and arable land by the ever increasing population and uncontrolled forest resource harvesting has been the major contributors to this degradation.

On whether the law enforcement agencies are involved in the evaluation of all the applications for the utilization of forests and forest resources by individuals it was noted as follows in Table 4.15 below.

Table 4.15: Application evaluation involvement for utilization of Forest Resources

Enforcement Agencies	Response	VD	LS	UN	S	HS	Total
KWS; KFS							
	%	60.0	29.1		9.1	1.8	100
County Rangers							
	%	36.4	54.5		9.1	0.0	100
CFA officials							
	%	47.1	41.2		11.8	0.0	100
Chiefs	%	42.9	14.3		42.9	0.0	100

Most respondents 60% among the KWS and KFS were very dissatisfied, 54.5 % among the county rangers, were least satisfied and 47.1% from the CFAs and 42.9% from the Local Administrators were not satisfied with the evaluation of applicants for use of forest

land and other resources. The findings suggests that there is a challenge on how such management strategies as Participatory Forest Management Systems can effectively work, since there is a challenge on how the evaluation is done and by extension who gets the permit to utilize forest land and resources .

Kenya Forest Service (2009) also suggested the need to for local communities to be included in all forest management activities. This view was also held by Schreckenberg *et al.*, (2007) who indicated that for improved ways of forest management the use of a Participatory Forest Management approach was the best. However, the challenge has remained on how the people to be involved are evaluated and how the conservation agencies are involved in the entire forest management.

In investigating whether the procedure for issuing licenses to successful applicants for the utilization of forests was done according to the set requirement or not it was established that a majority of the respondents felt that the process was influenced by a lot of malpractices such as bribery, hence the most deserving applicants were not considered. Among the KWS and KFS respondents the results show that most of them 56.4% were not satisfied, 45.5% of the county rangers and 52.9% of the CFAs. However, the Chiefs were somewhat satisfied, (28.6%). The dissatisfaction with the procedure seems to act across all the four agencies.

The results are consistent with the findings of Spruyt, (2011) who observed that majority of the successful forest users are not committed to the management course of the forests, since they abuse the usage rights by engaging license given to cause deforestation instead of conserving the forest. There is need to have a legal system that can enforce the law to the later also to help conserve the forests. It was also noted by Gobeze et al (2009) that to bring sanity in the forest conservation plans, there in need to ensure that applicants for licenses are a view to ensuring that those who are moral and committed to forest conservation are successful.

4.4.3 Level of Participation by CFAs in Forest Conservation

Regarding the extent to which CFAs participate in protection and conservation of Maasai Mau forest in Narok County. The response from the respondents from the four agencies were analyzed and presented as follows: In monitoring and management of water extraction and distribution points it was noted as shown in Table 4.16 below.

Table 4.16: CFAs participation Levels in Monitoring and Management of Water sources

Enforcement Agencies	Response	VD	LS	UN	S	HS	Total
KWS; KFS	%	56.4	30.9		10.9	1.8	100
County Rangers	%	45.5	36.4		0.0	18.2	100
CFA officials	%	44.1	41.2		14.7	0.0	100
Chiefs	%	28.6	42.9		28.6	0.0	100

Most respondents were dissatisfied with the level of participation of CFAs in monitoring of the water extraction and distribution points in the county. The results revealed that 56.4% among the join enforcement group were not satisfied with the level of participation by the CFAs, 45.5% among county rangers were not satisfied while 44.1 % of CFAs and 42.9% of the Chiefs were not satisfied with the participation level of the CFAs in the monitoring and management of the water distribution points. Previous study by Kosgey (2015) and Spruyt, (2011) have supported the involvement of communities around the forest in all processes included forest management decisions. According to Kosgey having stakeholder's involvement in matters pertaining forest management in such water catchment areas will promote following conservation rules and regulations. Onyango et al (2008) also identified various areas that call for the participation of the communities living around the forests. According to him these communities continue to promotion of management of the water extraction and distribution points besides taking an active role in the re-afforestation and conservation activities.

Role of the CFAs in reducing forest destruction and degradation was also sort by this study and the responses were as follows Table 4.17 below.

Table 4.17: CFAs Role in the Reduction of Forest Destruction and Degradation

Enforcement Agencies	Response	VD	LS	UN	S	HS	Total
KWS; KFS	%	56.4	27.3	1.8	9.1	5.5	100
County Rangers	%	54.5	18.2	18.2	0.0	9.1	100
CFA officials	%	41.2	41.2	0.0	8.8	8.8	100
Chiefs	%	42.9	42.9	0.0	0.0	14.3	100

56.4% of the KWS and KFS were not satisfied with how the CFAs groups were involved in forest management. Among the rangers 54.5% were also not satisfied, 41.2% of the CFAs representatives were not satisfied with the efforts being put in by the agency in regard to protecting the forest because they lacked the support from the government while 42.9% of the Chiefs were not satisfied with the support the other law enforcement bodies were offering to them. They indicated that their efforts in the conservation process are usually watered down by the political interference. The efforts of the local Communities in enhancing conservation of the forest were also affected by their lack of involvement in the decision-making process involving key conservation issues. This makes the community reluctant to give their full support to the forest conservation process by the CFAs. This implies that there was the extent to which the forest is being destroyed is depended on the low levels of participation in the conservation process.

It was also essential to establish the extent to which the concerned agencies offer training to the adjacent communities to empower them to undertake forest management as shown in Table 4.18.

Table 4.18: Adjacent Communities Training on Forest Management

Enforcement Agencies	Response	VD	LS	Total
KWS; KFS				
	%	36.4	63.6	100
County Rangers				
	%	54.5	45.5	100
CFA officials				
	%	35.3	64.7	100
Chiefs	%	71.4	28.6	100

The results in Table 4.19 above show that an overwhelming proportion of respondents from the law enforcement agencies were not satisfied with the level of community participation in the conservation process. This was partly because the state agencies are lethargic in training community members neighbouring the forest in conservation skills. The finding is consistent with Gobeze et al (2009) claim that if forest conservation training was effectively offered to the local communities, it will bear more fruits than what is currently being experienced.

This is also echoed by Kyeremah, (2015) who observed that while communities that dwell close to the forest claim ownership of the resources , they are most often the first culprits in the mismanagement of the forests, through unguided practices hence this calls for training to help them learn effective ways of management of the forests. The same applies to Blaser (2010) who also noted that involvement of communities in forest conservation decisions enhances the effectiveness in forest conservation.

Level of at which the official agencies were consulting the community in Forest Management planning and operations was also sort as shown in Table 4.19.

Table 4.19: Level of Consultation of Neighboring Communities on Forest Management

Enforcement Agencies	Response	VD	LS	S	HS	Total
KWS; KFS	%	34.5	45.5	10.9	9.1	100
County Rangers	%	54.5	18.2	9.1	18.2	100
CFA officials	%	38.2	32.4	5.9	23.5	100
Chiefs	%	42.9	28.6	28.6	0.0	100

Respondents 45.5% of the KWS and KFS indicated that they were unsatisfied, while 34.5% were unsatisfied at all with the way the communities around the forests were being involved in the conservation process. The results also show that the majority of the county rangers 54.6% were not satisfied with the way the communities were being involved in the conservation process. This was attributed to the fact that the process is usually hijacked by the political class who has no intention of conservation but their own personal benefits. They use the forest resources to advance their political careers and hence they do not bother about the forest preservation. Similarly, 38.2% and 42.9% of the respondents from the CFAs and the Chiefs respectively said that they were not satisfied at how the communities were being involved in forest management activities. This implies that local communities are not consulted or if there is any consultation it does not yield to any effective results in the forest conservation exercise. This supports Abedi-Lartey, (2010) indicated that although the level of forest degradation is said to be between 0.2 - 0.3 % over the last ten years the situation might be worse than the figure speak.

The extent to which agencies involved in forest management included local communities in forest management was also sort and responses given as follows in Table 4. 20 below.

Table 4.20: Resolving Forest Management grievances with neighboring community

Enforcement Agencies	Response	Satisfied	Highly Satisfied	Total
KWS; KFS	%	50.9	49.1	100
County Rangers	%	54.5	45.5	100
CFA officials	%	50.0	50.0	100
Chiefs	%	71.4	28.6	100

Most of the respondents 50.9% of KWS and KFS indicated that they were not satisfied while 49.1 % were least satisfied with the way the communities around the forest were being involved in the conservation process. The results also show that 54.5% of county ranges were not satisfied at all and 45.5% were least satisfied in the conservation process. Similarly, 50%, 71.4% of CFAS and local administrators were not satisfied at all on the communities were involved in the forests management. The results implies that the efforts in forest conservation not just in the Mau but across communities in Africa is far from being won. This supports the literature where most researchers in this areas are calling for community participation and encouraging the authorities to use more democratic procedures in solving the forest issues other than the authoritarian commands systems (Abedi-Lartey, 2010).

Responses on respecting the right of the community to control and manage the forests on their own were sort and analyzed as follows in table 4.21 below.

Table 4.21: Forest Management Community Right

Enforcement Agencies	Response	VD	LS	Total
KWS; KFS	%	27.3	72.7	100
County Rangers	%	36.4	63.6	100
CFA officials	%	29.4	70.6	100
Chiefs	%	57.1	42.9	100

Feedback generated showed that 72.7% of the respondents were less satisfied from KWS and KFS and 27.3% were not satisfied at all on respect for community right to control forest management. The results also indicate that 63.6% of county ranges were least satisfied and 36.4% were not satisfied at all on the community right to control forest management. Also,70.6% of CFAs were least satisfied and 57.1% of Chiefs was not satisfied at all on the community right in the conservation process of forests. This implies that the agencies involved in the conservation felt that it will not be appropriate to leave the management of the forest fully to the communities. This agreed with Yeremei (2015) and Tyahabwe et al (2012) who had similar views that leaving the forest management to the communities that claim ownership of the natural resources would be retrogressive as these communities often mismanage the resources though unguided practices. It was however noted that, if the communities are fully involved through effective community participation procedures is likely to bear fruits by making the community more committed to the management and preservation of the local natural resources.

The agency representatives were also required to give their views in regard to the fact that forest conservation helps to recognize and protect indigenous cultural artefacts as shown in Table 4.22.

Table 4.22: Indigenous Peoples Cultural Artefacts

Enforcement Agencies	Response	VD	LS	Total
KWS; KFS	%	5.5	94.5	100
County Rangers	%	9.1	90.9	100
CFA officials	%	11.8	88.2	100
Chiefs	%	14.3	85.7	100

Findings show 94.5% of respondents from KWS and KFS were least satisfied in their involvement of forest conservation process. Also 90.9% of the respondents from county rangers were least satisfied apart from 9.1% who were not satisfied at all. Similarly, 88.2% of CFAs and 85.2% of Chiefs agencies were least satisfied in the community involvement

in conservation process of forests. This implies that the conservation exercise has not helped to conserve cultural artefacts for the indigenous people living around the forest. These responsibilities according to Bathsheba (2011) and Kyeremeh (2015) calls for active involvement of the communities to take part in planning and development of forest management policies and taking initiative and participation in the protection of the forests from outsiders and also make appropriate decision on the use of the forests.

On whether there has been compensation to the indigenous communities on applicability of their forest species knowledge it was noted as follows Table 4.23.

Table 4.23: Compensating Indigenous Peoples Knowledge about Forest Species

Enforcement Agencies	Response	Very Dissatisfied	Less Satisfied	Total
KWS; KFS	%	12.7	87.3	100
County Rangers	%	9.1	90.9	100
CFA officials	%	14.7	85.3	100
Chiefs				

Findings show 87.3% of KWS and KFS were least satisfied and 12.7% of the respondents from the same agencies were not satisfied at all on their involvement in the conservation of forests at all. Also 90.9% of respondents from county rangers agencies were least satisfied; 9.1% from the same agency were not satisfied at all. Similarly, 85.3% of CFAs and %57.1% of the Chiefs were least satisfied with the community involvement in the conservation process of forest. This implies that the indigenous communities are not compensated to effectively use their natural forest management strategies to conserve the forests. This agrees with the findings in the study by Warah (2008) who indicated that any effort made by the indigenous communities to conserve the forests is never recognized and if any compensation is made then the educated and the well-connected in the community are the once who benefit because they can maneuver their way out.

This shows that majority of the law enforcement agencies were not satisfied with the extent to which the CFAs were involves in the forest conservation and management process, they felt that more need to be done to involve the community in the process is the process was to be successful . They indicated that unless the agencies involve the communities and they train them on the effective use of the forests then they will not success in their efforts. It is important to note that the communities have the core responsibility of ensuring that the community and its environment is preserved. It is much easier for the chiefs and other community leaders to initiate the conservation process under the guidance of the various agencies other than the agencies themselves initiating the move.

The results have indicated that the current centralized form of managing the forests and enacting the policies thereof will not bear any favourable fruits so long as the local people are alienated from decisions on forest management. The lack of effective and inclusive policies are just among the factors that fuel the destruction and environmental degradation (Lise at el,. 2009). In terms of support for community involvement in forest conservation, Iddi, (2010) indicated that majority of the forests that are conserved and managed by communities for traditional rituals and also those where the community is direct involved in their management are granted more respect by the concerned communities and hence they are very well conserved.

Generally, the results suggests that Law Enforcement Agencies were aware of their roles of detection of illegal activities within the forest, ensuring suppression of illegal activities, reducing illegal clearing and settlement in the forest, preventing illegal logging, stopping illegal burning of charcoal and transportation, prohibiting uncontrolled cultivation in the forest and arresting and prosecution of offenders in activities of management forest resources. On whether the forest law enforcers were successful in their enforcement of the law or not it was noted that though they are all involved the level of success was not satisfactory and in establishing how CFAs Participation affects the forest conservation status of Maasai Mau forest in Narok county Kenya the participation is there but it is still below expectations.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The section presents a summary of the main findings, conclusions and recommendations basing on the set objectives which was assessment of the forest conservation status of Maasai Mau forest in Narok county Kenya mainly re-afforestation activities have been undertaken in Maasai Mau Forest, to establish the extent to which Forest Law Enforcement Agencies have succeeded in protecting the Maasai Mau Forest and to ascertain the level of CFAs participation in managing Forests.

5.2 Summary of the Findings

Male respondents were dominant a fact attributed to culture where men were more involved in issues of land and conservation of forests available at the time of the study most respondents were also noted to have been in the age bracket of 31-45 years .This shows that the views and opinion of most of the people in the population were captured in the study.

Regarding the education level the study established that most of the respondents from the household have attained tertiary education. This also shows that the respondents have knowledge that is adequate enough to address queries related to forest management and have stayed long enough to provide appropriate views about the forest and level of deforestation.

5.2.1 Perceived Level of Re-Afforestation

The study established that the re-afforestation activities including ; the planting of trees training programs , having plans to assist the community on effective use of forest for their livelihood among other have been given attention in the conservation process and there has been minimal benefits obtained mainly by the adjacent communities and individuals due to the weak structure of the programs. The need for local community participation at all stages of Forest Management need to be pronounced more so in making decisions and planning forest management activities.

Besides community members need to see less of government dictatorial way of handling forest related matters. This implies that there is need for more collaborative approach to conservation other than the current dictatorial management style by the government agencies. The respondents felt that if this is done then the there is a likelihood of the re-afforestation efforts bearing fruits in the conservation of forest.

5.2.2 Enforcement Agencies Success Rate

To a great extent forest law enforcement agency have been successful detection of illegal activities within the forest. In addition law enforcement agencies has been successful in ensuring suppression of illegal activities within the forests even though they are not gated This implies that the agencies that operate in the Mau forest are able to effectively ensure successful law implementation in the un gazette forests.

The results also show that the agencies have succeeded in reducing illegal clearing and settlement in the forest, in addition that the agencies have succeeded in reducing illegal clearance and settlement in the forests including those that have not been gazette . The respondents indicated success of the forest agencies operating in the Mau forest in preventing illegal logging both in the gazzeted and the non gazetted forests in Mau. Some of the issues that indicate achievement are success in stopping illegal burning of charcoal and transportation within the Mau areas which has promoted forest conservation, there has also been success in prohibiting uncontrolled cultivation in the forest, arresting and prosecution of offenders who violet the rules and regulations. Further it was found out the agencies in charge of the forests have succeeded in preventing arson and poaching activities in the forests regardless of whether they are gazetted or not.

The results show that the agencies were involved in the preparing and implementing management plans for all public forests including those that are not gazette. Law enforcement agencies in Maasai Mau forest were not satisfied with the way the public forests management plans were being prepared and implemented. In addition low satisfaction the way the capacity between the forest community and the private land was being developed. This was attributed the low success in protecting the Maasai Mau forest

to this lack of a common agenda between the forest community and the private land owners. The results also indicate that the agencies also have a problem with the enforcement of the provision of the Forest Act of 2005. The respondents also noted that the provisions of the forest act of 2005 were not being enforced effectively and this affected the effectiveness of the forest protection efforts by the various agencies.

Kenya Forest Services which has semi autonomy powers as per the act in forest management led to many challenges in the enforcement efforts by the agencies who are supposed to assist the KFS in enforcing the law and ensuring that the forests are managed and prevented from any further destruction. The study also established that the law enforcement agencies were not comfortable with how the forest rules and regulations were being enforced in most of the forest areas because each of the agencies are charged with different roles in the conservation process though all of them are supposed to take a leading role in enforcing the rules and regulations.

In addition agencies involved in Forest law enforcement were not happy with the way the culprits caught breaking the laws were being handle. To a higher extent the agencies felt that there was a lot of favoritism in the way these law breakers were handled and hence this led to laxity in the whole process of law enforcement. The results also show that there is a challenge on how such methods as participatory forest management systems can effectively work since there is a challenges on how the evaluation is done and who gets the permit to carry out their activities in the forest.

The results suggest that for conservation plan to work effectively there in need to ensure that vetting for the license applicants is done in a transparent manner and only those applicants who apply for the licenses are awarded with the certificates. It is therefore noted that if the efforts of the law enforcement agencies can be recognized and appropriate measures taken to prosecute the law breakers on forest then the efforts of these agencies will be felt in all forest management activities.

5.2.3 Level of Participation by CFAs in Forest Conservation

The results have also indicated that majority of the enforcement agencies were not satisfied with the way the community participated in the conservation process. It was revealed that most agencies have not involved the communities actively in the conservation process and hence the support required from the community is lacking. The study also established that the community is not trained to enhance their conservation skills and hence give appropriate support to the law enforcement agencies. Consultation breakdown between Enforcing agencies and local communities affected the effectiveness of the law enforcement process to yield useful results in the forest conservation exercise. There was also an indication that the lack of consultation in the conflict resolution process between the agencies and the communities adjacent to the forest affected the outcome of the resolution process. This clearly indicates that the efforts in forest conservation not just in the Mau but across manage communities in Africa is far from being won.

Although the agencies in the conservation efforts felt that it will not be appropriate to leave the management of the forest fully to the communities, but it was an issue that could not be delineated because of cultural artifacts for the indigenous people living around the forest. This implies that the cultural attachment accorded by the communities to these forests by indigenous communities should be natured and effectively incorporated in the all strategies and efforts of managing the forest resources. The results indicated that unless the agencies involve the communities and they train them on the effective use of the forests then they will not success in their efforts. It is noted that the communities should be assisted by the agencies so that they can take responsibility of ensuring that the forests are conserved effectively.

From the results, it is evident that chiefs and other community leaders can easily initiate forest conservation process under the guidance of the various agencies other than the agencies themselves initiating the move. This implies that the agencies were not satisfied at how the re –afforestation was being done through the initiative of planting trees. The study also revealed that the agencies were not satisfied with the programs being offered to enhance participation by the communities in the forest conservation efforts. However,

effective use of Forests by local communities in Europe and Americas has been acknowledged by previous studies.

The results also indicated that the re-afforestation efforts of planting trees and the community training regarding the benefits of the forest are not satisfactory and hence it was ineffective. This implies that community involvement in forest conservation exercise has not been given the required effort hence leading to the failure of forest conservation activities. Politicians have been undermining the efforts of the agencies and the communities in undertaking their role in Forest Management. The control by the government for their political gain leaving out the forest dependent communities adjacent to the forests has contributed to a large extend on the failure of the effort by the agencies and the communities to enhance .

5.3 Conclusions

Based on the study results, it is established that forest agencies that are charged with the responsibility of enhancing laws and regulation are enforced do not only take care of the gazette forests but they are also actively involved in the enforcement of these laws in the non gazzeted forests. The study concluded that the agencies involved in law enforcement efforts in the area , majorly in enhancing re afforestation of gazzeted and non-gazette forests despite most of the respondents agreeing that the agencies are faced with many challenges ranging from poor facilities, lack of enough staff and lack of support from the communities.

It is also concluded that in Maasai Mau forest the law enforcement agencies have succeeded though with a lot of challenges to ensure that the forests are effectively take care off. It is also indicated that the forest law enforcement agencies play a critical role in enhancing the efforts of the CFAs in the management of the non gazzeted forests in Mau division. It is noted that though the agencies management of these forests through enforcement of the various laws have much succeeded, ensuring that the re-afforestation process is undertaken and promoting the role of CFAs in effectively participating in the conservation process of the Maasai Mau forest.

5.4 Specific Recommendations

The study sort to assess the forest conservation status of Maasai Mau forest in Narok county Kenya. It is therefore recommended that the following interventions be undertaken to save the Maasai Mau Forest.

Based on the study findings the following are the recommendations.

i. Mandate of agencies involved in Forest management be expanded through amendment of the relevant legislation to include management of non-gazetted forests.
ii. That the government should provide the law enforcement agencies with adequate facilities and staff so as to effectively promote forest management activities in non-gazetted forests in the Mau area.
iii. That the law enforcement agencies should be involved actively in implementing public forests management legislations and plans.
iv. That there is need for Law enforcement agencies to be trained on community right to control forest management to promote partnership and reduce conflict between them and the neighbouring communities.
v. That there is need for forest management to ensure that local communities are empowered through active participation in forest management of the non-gazetted forests in the area to reduce deforestation activities.
vi. That the policy makers should formulate policies that support community mobilization and encourage neighbouring communities to effectively and efficiently undertake forest management of the non gazzeted forests.

5.5 Suggestions for Further Study

1. The role of CFAs in the conservation of all non-gazetted forests in the country to generate more comprehensive and reliable knowledge on forest conservation.

2. There is need to carry out a comparative study of forest conservation status of gazetted and non-gazetted forests.

3. There is need to analyse Forest Conservation status in all the non-gazetted forests in Kenya.

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APPENDICES

Appendix I: Introduction Letter

Mwiwawi Ronald Fumba,
P.O. Box 4-20500,
NAROK.

WHOM IT MAY CONCERN
Dear Sir/Madam,

RE: DATA COLLECTION

I am a student at University of Nairobi undertaking a Master of Arts Degree in Criminology and Social Order. I am undertaking a research project "An Assessment of the Forest Conservation Status of Maasai Mau Forest in Narok County Kenya
Your responses you give are only for the purposes of undertaking this project and will not be available for any other use without express permission from you.

Yours Faithfully,

Mwiwawi Ronald Fumba.

Appendix II: Questionnaire

SECTION A: BIO-DATA OF THE RESPONDENT

1. Which Forest Law Enforcement Agency do you work for----------
2. What Employment Position do you hold? ----------
3. How many years have you worked with the Agency----------
4. What is your Level of Education----------
5. Have you undergone any formal training in Forest Management Yes/No
6. If yes, what kind of training----------
7. Which other Forest Law Enforcement Agencies do you know of----------
8. What are the specific roles of your Forest Enforcement Agency (List them below)

   ……..

   ……..

   ……..
9. What are the specific objectives of your Agency in forest management?

   (List them below)

   ……..

   ……..

   ……..

SECTION B: PERCEIVED SUCCESS IN RE-AFFORESTATION ACTIVITIES

To what extent are you satisfied with Re-afforestation activities in Maasai Mau Forest? (NS-Not Satisfied, LS-Lowly Satisfied ,N-Not Sure, FS-Fairly Satisfied, HS-Highly Satisfied).

No.	Statement	NS	LS	N	FS	HS	
1.	Process of planting trees						
2.	Program to provide farmers with best ways of utilizing forest land						
3.	Plan for the community to use the forest to meet their basic need for firewood and building material						

4.	Availability of Tree seed orchards						
5.	Community training on the benefits of reafforestation.						
6.	High dependence on the forest hinder re-afforestation activities.						
7.	Political confrontation interfere with re-afforestation activities.						

SECTION C: SUCCESS IN FOREST LAW ENFORCEMENT

What is your level of satisfaction on Roles played by Forest Law Enforcement Agencies.NS-Not Satisfied,LS-Lowly Satisfied,N-Not Sure, FS-Fairly Satisfied, HS-Highly Satisfied.						
No.	**Statement**	**NS**	**LS**	**N**	**FS**	**HS**
1	Preparing and implementing management plans for all public forests					
2	Building capacity for forestry development on community and private land.					
3	Enforcement of the provisions of the Forest Act of 2005.					
4	Enforcement of any other forestry and land use rules and regulations.					
5	Investigating, making arrests and pursuing prosecution procedures for any suspects.					
6	Evaluating all the applications for the utilization of forests and forest resources to individuals, corporate bodies and communities.					
7	Issue licenses to the successful applicants for the utilization of forests.					

.**SECTION D: ROLE OF CFAs IN FOREST MANAGEMENT**

To what extent are you satisfied with the role of CFAs in Forest Management? (NS-Not Satisfied, LS-Lowly Satisfied, N-Not Sure, FS-Fairly Satisfied, HS-Highly Satisfied).							
No.	**Statement**	**NS**	**LS**	**N**	**FS**	**HS**	
1.	Monitoring and management of water extraction and distribution						
2.	Reducing forest destruction and degradation						
3.	Providing training for the adjacent communities on Forest Management.						
4.	Consulting the community in Forest Management planning and operations.						
5.	Resolving grievances within the adjacent community on forest management related matters.						
6.	Respecting community right to be involved in all matters related to forest management						
7.	Recognizing all indigenous cultural artefacts						
8.	Compensating indigenous peoples for forest species knowledge						

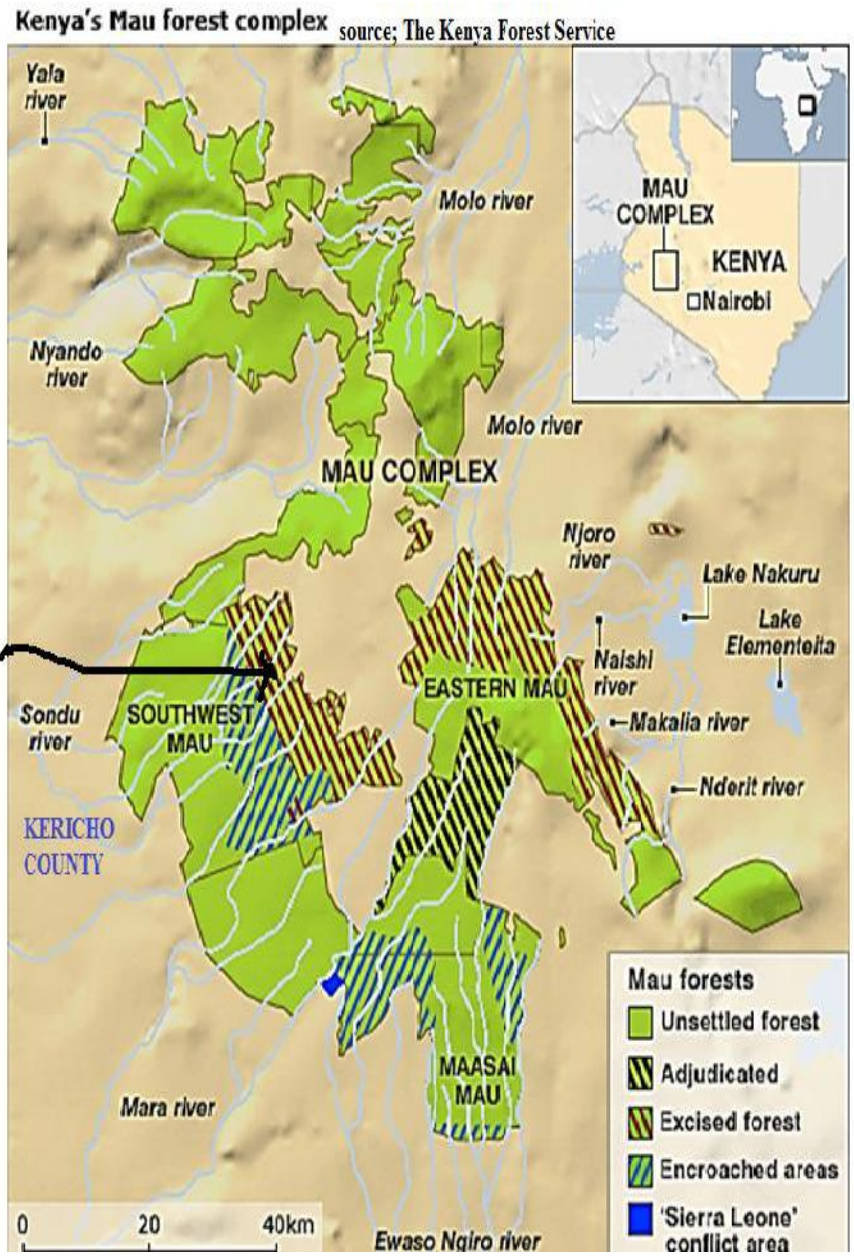
Appendix III: Sample Size for a Given Population Size

Table 11.3
Sample Size for a Given Population Size

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Source: Adopted from Fisher (1998) Research Methods for Stratified Sampling.

Appendix IV: Kenya's Mau Forest Complex



Source: The Kenya Forest Service