

**EXAMINING THE ROLE OF COMMUNITY PARTICIPATION IN FOREST  
MANAGEMENT AND CONSERVATION IN KIMOTHON FOREST, TRANS NZOIA  
COUNTY, KENYA**

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## DECLARATION

### Student Declaration

This project is my original work and has never been presented for a Degree in any other University or institution of higher learning.

Signature .....

Date.....

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### Supervisors' Declaration

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

Signature .....

Date.....

**Name:** .....

**Designation:** .....

## **DEDICATION**

I would wish to dedicate this project to my dear wife, Janice and my beloved daughter and sons for the immense support they accorded me throughout this program.

## **ACKNOWLEDGEMENT**

My deepest appreciation and thanks go to all my lecturers at the University of Nairobi for their guidance and constructive criticisms that helped me stay focused from the beginning of the course to the end. Key among these is my supervisor Dr. C.A. Mumma, who offered me guidance and patience in seeing this project successfully completed. My utmost gratefulness also goes to my colleagues, friends, classmates and my family whose friendship and support in various aspects have helped me accomplish this degree.

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## ABSTRACT

The aim of the study was to examine the role of community participation in forest management and conservation in Kimothon forest, in Trans-Nzoia County. The study aimed at assessing the influence of community participation in forest management and conservation in Kimothon forest, to determine the challenges that Kimothon CFA members encounter while conserving and managing the forest, and establish factors that influences community participation. In the study, the researcher sought to answer three research questions: How have community participation influenced forest management and conservation in Kimothon forest, what challenges do Kimothon CFA members face while conserving and managing the forest, and what factors influence community participation on forestry conservation and management efforts in Kimothon forest. In the study, the researcher employed Common Pool Resource Theory to guide the study. In assessing the role of community participation on forest management and conservation in Kimothon forest, the researcher sought to test three hypotheses: shared benefits have no effects on community participation in forest management, availability of effective institutional framework does not influence community participation on forest management, and community awareness does not influence community participation on forest conservation and management in Kenya. The study employed a research design that allowed the use of questionnaires, interview schedules, and focus group discussion to collect data from the participants. The researcher used purposive and simple random sampling methods to sample 100 participants to ensure the sample represents the general characteristics of the population. The sampled units consisted of Kimothon CFA members and Kenya forest Service (KFS). Data collected was analyzed using Statistical Package for Social Science, denoted as (SPSS) and presented using tables, charts and graphs. Furthermore, multivariate regression analysis was done to test the hypotheses, establish, and predict the nature of the relationship between the dependent variable and the independent variables (predictors). From the survey results, it was found out that, the role of community participation is paramount in addressing ecological challenges, increasing forest cover, and improving enrichment of rehabilitated ecosystems. Majority of the respondents supported the integration of community participation on forest conservation. The study findings envisioned that poor leadership and inadequate resources are the main challenges that CFA members encounter while conserving and managing the forest. The study further confirmed that, economic constructs, benefit sharing and community awareness are key factors, which influence the level of community participation on forestry management and conservation in Kimothon forest. Based on the research findings, the researcher recommended that, there was a need for the government through Kenya Forest Service department to initiates more community-based enterprises and income generating activities to promote community participation and enhance community awareness through education forums, seminars, and media campaigns, and promote value addition on forest products. The study also recommended that, there was a need to enhance capacity building and training of CFA members on emerging issues related to governance of community-based organizations to promote accountability and transparency among the CFA members, and reduce conflicts arising from group dynamics.

## ABBREVIATIONS

ASFADA	-	Arabuko Sokoke Forest Adjacent Dwellers Association
CBFM	-	Community Based Forest Management
CCs	-	County Councils
CPRC	-	Chronic Poverty Research Centre
CF	-	Community Forestry
CFA	-	Community Forest Association
CFM	-	Community Forest Management
CG	-	County Government
FD	-	Forest Department
GOK	-	Government of Kenya
JFM	-	Joint Forest Management
KACOFA	-	Kakamega Community Forest Association
KEFRI	-	Kenya Forest Research Institute
KFS	-	Kenya Forest Service
NG	-	National Government
MEFECAP	-	Meru Forest Environmental Conservation and Protection
PFM	-	Participatory Forest Management
SPSS	-	Statistical Package for Social Sciences
UNDP	-	United Nations Development Program

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background of the Study**

Forests have cultural, social, economic, and ecological value that plays a crucial role in enhancing quality of life and supporting natural systems in the environment. A study done by the Chronic Poverty Research Centre's (CPRC) in 2005 indicated that, nearly 31% of the world land area is covered by forests. The study further affirmed that, developing nations, especially those within the tropics account for about 58% of the world's forest cover (CPRC, 2005). The World Bank report of 2007, affirmed that approximately 1.7 billion people directly and indirectly depend on forestry products and resources such as honey, firewood, timber, fodder, and fruits for their livelihood. The report further articulated that various user groups including herdsmen, hunters, and firewood and pole collectors benefit from exploiting forest resources in different ecosystems (World Bank, 2007). For instance, in the Mount Elgon ecosystem, herdsmen and other user groups not only exploit and use forest resources and products to improve their livelihood, but also engage in other activities such as bee keeping and establishing tree nurseries as a way of enhancing forest conservation and management efforts in the area.

Kenya has strived to formulate and enact pieces of legislations and implement various institutional policies to facilitate efforts geared towards increasing its forest cover and address the issue of forest destruction. Despite such efforts, the country is ranked as one of the countries with low forest cover in the world. According to a report released by FAO (2008), Kenya had a forest cover of about 1.23 million hectares-which translated to less than 2% of its total land area. The report also cited several factors that have fuelled forest degradation, but some of the key factors include; Population increase, encroachment of forests and water catchment zones for human settlement, and the competing use of land for industrialization and other infrastructural developments.

In an attempt to increase forest cover and counteract negative impacts accruing from forest degradation, the government has embraced the concept of decentralization and community participation in the management and conservation of natural resources. For many years, Kenya and other African states adopted a centralized form of governance that mainly advocated for

delegation and devolution of administrative power to lower arms of the government. The central government only delegated its administrative powers and authorities to regional arms of the government to promote efficiency in governance; a move that lowered the government's efficiency in the management of forests and other natural resources. Although this was the case, the need for effective deliverance of administrative services coupled with the increasing demand for the integration of communities in governance at the local and International level has compelled the government to adopt decentralized public based strategies in the management and conservation of natural resources.

Studies have shown that decentralized form of governance is effective than a centralized form of governance in management and conservation of natural resources (United Nations Development Programme [UNDP] (2013). This assertion is anchored on the fact that, unlike a centralized form of governance, a decentralized form of governance grants local communities power and authority to participate in decision-making processes and enforce local rules to manage and conserve natural resources. In most cases, a decentralized form of governance embraces the use of community based approaches to enhance forest conservation efforts. Scholars have also established that, decentralized community based strategies are effective as they are flexible and allow local communities to exploit natural resources and simultaneously participate in conservation efforts in varied ecosystems.

Promoting community participation has not only become an issue of growing importance in governance, but also an issue of great significance in the management of forests and other natural resources. Many countries have embraced Community Forest Management (CFM) or Participatory Forest Management (PFM) model as an effective and alternative approach in promoting sustainability in management and conservation of threaten forest reserves and forest resources. This approach is premised on three constructs namely: equity, inclusion, and democratization in the management of forest resources (United Nations Environment Programme [UNEP] (2012). The PFM approach is not only essential in enhancing forest conservation, sustaining balance in the ecosystem, and curbing forest degradation, but also critical in increasing forest cover and conserving biodiversity.

PFM remains a relatively new concept in Kenya, but it is not a new concept in most African states including, Tanzania, South Africa, Senegal, and Morocco, which embraced it to strengthen community forestry practices and enhance forest conservation and management efforts at the local level. In Africa, PFM model was first introduced in Morocco in 1976 where local communities were involved to improve reforestation programs undertaken by the government to curb forest degradation. The involved communities were allowed to exploit and benefit from forest resources and, at the same time participate in conservation and management efforts. In Tanzania, the enactment of the Forest Act of 2004 paved way for the introduction of PFM. Under the provisions of this act, communities residing adjacent to forests have ownership rights and power to share benefits accruing from forest conservation and management efforts with the Tanzanian government and other involved parties (Iddi, 2010). The Tanzanian government not only adopted PFM model to enhance forest conservation and management practices, but also to alleviate poverty, improve quality of life and spur economic development in marginalized areas. Various motivating factors have also influenced many nations to adopt PFM. The Indian government established community based programs to promote conservation efforts in forests, that state agencies could not have managed them effectively. In Nepal, the need to reduce poverty was the main motivation factor for the integration of community participation in forest management and conservation practices especially, under the lease forestry policy.

After realizing the critical role that forests play in spearheading economic, social, and cultural development, the government through an act of parliament enacted the Forest Act of 2005, which sets the principles of PFM to promote community involvement in forest management and conservation at the local level. The Act grants the Kenya Forest Service (KFS) powers to implement the principles of PFM and encourage forest adjacent communities to form Community Forest Associations; denoted as (CFAs) to enhance efficiency in the management and utilization of forest resources. The promulgation of the new Constitution in 2010 further encouraged the integration of community participation in forestry management under the devolved system. Under the Fourth Schedule of the 2010 Constitution of Kenya, the National government (NG) and county governments (CGs) have distinct roles and responsibilities in reference to the management of forests, natural resources and the environment. Constitutionally, the CGs has the obligation of formulating and implementing legislations on forestry

management, and implementing certain national policies on forest management. However, the national government and KFS need to offer technical assistance to the CGs in order to improve forestry management efforts at the grass root level. In respect to Act No. 1 of 2012, under the devolved government, NG and CGs are encouraged to adopt PFM and community-based approaches in a move to increase the forest cover through community participation initiatives. This is a clear indication that both the NG and CGs need to cooperate in implementing effective forestry management programs to rehabilitate degraded ecosystem and increase forest cover.

A study done by the Research Action in 2009, affirms that, the first pilot study on the impact of PFM through CFAs on poverty reduction was done in 1997 at Dida in Arabuko-Sokoke, Coast region (Musyoki, Mugwe, Mutundu & Muchiri, 2016). Other similar studies have been carried on Mount Elgon ecosystem, Mount Kenya region, Kakamega forest, and other regions. It is obvious that PFM approach has played an integral role in increasing forest cover, reducing forest degradation, and maintaining balance in the ecosystem, but community participation remains an indispensable construct in enhancing efficiency of PFM approach and promoting sustainable forest management in Kenya.

## **1.2 Statement of the Problem**

Effects of local participation in forest management are highly contested throughout the literature, and thorough studies showing causal effects between community participation in forest management and positive outcomes are insufficient (Ribot 2002). Despite the alluring arguments that community participation in forest management promotes increased equity, greater efficiency, and facilitates rural development, studies from various African countries such as Mali and Burkina Faso shows that, the latest reforms have neither created accountable representative local institutions nor have they ceded power to local levels (Mogoi et al, 2012). Devolved authorities have great influence on decentralized forest management modalities, but the characteristics of the outcomes is anchored on the power receiving local entity and on whether the devolved local entities are representative and downwardly accountable (Agrawal & Ostrom 2001). In Kenya, forest management has been formally transformed to the CFAs in collaboration with the KFS department. Under the PFM arrangement, the CFAs are empowered to carry out various management activities in forest preservation, while the actual access to decision making processes, allocation of benefits, and the control of forests are entrusted to the KFS (Mogoi et al. 2012; Ongugo, 2007). Empirical studies have revealed that, the CFAs-under the PFM approach

have played an indispensable role in enhancing forestry conservation practices in varied water catchment towers including the Mau complex, Kakamega forest, and Arabuko-Sokoke. Wamae (2010) conducted a study assessing the impact of Community Forest Associations (CFAs) on the forest resources management in Kenya. The author explored the experiences of implementing Participatory Forest Management (PFM) under the Constitution of Kenya 2010 and the Forests Act, 2005. Ongugo (2008) conducted a study on the roles of CFAs in the decentralization process of the Kenyan forests. In 2009, Ongugo did a comparative analysis study on resource conservation outcome (under National park and Forest reserve regime) in Mount Elgon ecosystem, and established that, flexible and community involving regime is more effective than a rigid and community-excluding regime in managing forest resources.

Despite the establishment and existence of CFAs in Kimothon forest, cases of illegal logging, grazing, and forest encroachment remain high in the area, hence aggravates forest destruction in the Mount Elgon ecosystem. This raises a concern to the extent to which the integration of community participation promotes effective forest governance at the local level. Additionally, most of the empirical studies have focused on the impact of community forest associations (CFAs) on forestry management on major water catchment towers such as the Mau Complex, Kakamega Forest, and Arabuko-Sokoke, but there is no study that, has been done to examine the role of community participation in forestry conservation in a relative smaller water catchment tower such as Mount Elgon -Kimothon forest. It is against this backdrop that the study sought to examine the role of community participation in forest management and conservation in Kimothon forest, in Mount Elgon region, and provide viable recommendations on how to construct an effective framework to enhance forest conservation in the area.



### **1.3 Objectives of the Study**

#### **Overall Objective**

To examine the role of community participation on forest management and conservation in Kimothon forest.

#### **Specific Objectives of the Study**

The study was guided by the following specific objectives:

- i) To examine how community participation has influenced forest conservation and management in Kimothon forest.
- ii) To identify the challenges that Kimothon CFA members face in managing and conserving Kimothon forest.
- iii) To examine factors that influence community participation on forest conservation and management efforts in Kimothon forest.

### **1.4 Research Questions**

In respect to the above problem statement, the study sought to answer the following research questions:

- i. How has community participation influenced forest conservation and management in Kimothon forest?
- ii. What challenges do Kimothon CFA members face in managing and conserving Kimothon forest?
- iii. What factors influence community participation on forestry conservation and management efforts in Kimothon forest?

### **1.5 Justification of the Study**

#### **1.5.1 Academic Justification**

Scholars in Kenya have conducted several studies on the influence of PFM through CFAs on forest management and conservation in major ecosystems including the Mau Complex, Mount Kenya, Kakamega forest, and Arabuko-Sokoke. For instance, in 2010, Wamae conducted a study assessing the impact of Community Forest Associations (CFAs) on the forest resources management in Kenya. The author explored the experiences of implementing Participatory

Forest Management (PFM) under the Constitution of Kenya 2010 and the Forests Act, 2005. Ongugo (2008) conducted a study on the roles of CFAs in the decentralization process of the Kenyan forests. His select associations included the Meru Forest Environmental Conservation and Protection, denoted as (MEFECAP), Arabuko Sokoke Forest Adjacent dwellers Association, denoted as (ASFADA) and, Kakamega Community Forest Association (KACOFA). In 2009, Ongugo did a comparative analysis study on resource conservation outcome (under National park and Forest reserve regime) in Mount Elgon ecosystem, and established that, flexible and community involving regime is more effective than a rigid and community-excluding regime in managing forest resources. Guthiga (2008) examined the perception of local communities on forest management in Kakamega forest, and affirmed that, community involvement helps to change the attitude of local communities on forest management, thus enhancing efficiency in the management of forests and other natural resources. According to report released by Kenya Forest Research Institute (KEFRI, 2009), Mount Elgon ecosystem is considered one of the small forest ecosystems because it has few CFAs compared to the Mau forest -with 11 CFAs, Arabuko-Sokoke-7 CFAs, Mount Kenya- 6 CFAs, and Kakamega ecosystem- 4 CFAs. A study done by Kinyili (2014) on the impacts of participatory forest management approach in OLBolossat forest in Nyandarua County established that, community participation is an imperative component in promoting sustainable forest management. The study further articulated that, the government should institute effective framework to enhance co-management of forest resources with the local communities. In the study, the researcher also established that, availability of effective community structures coupled with community-based enterprises improved community participation at the local level.

All these studies illustrate that, the role of community participation is paramount in enhancing forest conservation and management efforts and promoting sustainable forest management through PFM approach. However, there is no study that has been done to examine the role of community participation on forest management and conservation in Kimothon forest, in Mount Elgon ecosystem. Therefore, this aspect forms the basis for this study and for further research on other constructs influencing community participation on forest management and conservation in Kenya. Additionally, the study aims at providing useful information to the relevant government agencies, scholars and existing and prospective CFAs.

### **1.5.2 Policy Justification**

The Kenya Forest Service (KFS) is a government agency mandated to manage and conserve forest resources, and promote sustainable forest management in the country. To achieve this fundamental goal, KFS needs to formulate effective policies and approaches that will spur community participation on forest management. Under the provisions of the Forest Act of 2005, local communities can only be involved in forest management and conservation efforts through the formation of CFAs. Although this is the case, KFS and other government agencies needs to formulate policies anchored on empirical studies to promote community involvement on forest management.

Lessons learnt from the study will complement government efforts to come up with strategic policies that integrate the local communities in forest conservation activities and harness their potential towards the country's economic development. The KFS that is in charge of forestry conservation in the country and to oversee the role played by CFAs will be able to gain in terms of the effectiveness of this method of conservation. The KFS will also be able to use the findings of this study in improving the operations and management of CFAs in the country. Additionally, most researches on forest conservation have been done on large forests that have attracted political attention. Contrarily to previous studies, this study intends to fill the existing research gap by conducting a study on one of the small forests, Kimothon forest that does not fall under the five large water towers in Kenya. Kimothon forest represents many other small forests in the various ecosystems that embrace the role of community participation on forestry management. Therefore, research findings are crucial in enhancing forestry conservation in the country.

### **1.6 The Scope and Study Limitations**

The study aimed at finding out the role of community participation on forest management, and conservation in Kimothon forest. Community participation remains an important aspect not only in governance, but also in the management of forest and other natural resources. The government through KFS has embarked on implementing the principles of PFM to promote community integration on forest conservation and management practices. Through decentralization process, communities have formed CFAs and adopted PFM approach to enhance forest management and conservation efforts in different water catchment towers including the Mount Elgon ecosystem. The study employed a holistic approach to examine the role of community participation on forest conservation and management in Kimothon forest. In order to realize this goal, the study

explored the factors that influence community participation, challenges that CFA members encounter in conserving and managing Kimothon forest, and the extent to which community participation-under PFM modality has influenced conservation and management efforts in Kimothon forest. Questionnaires, interview schedules, and Focus Group Discussions (FGD) were employed to gather data from CFA members and the Kenya forest officials at Kimothon forest and at the county government and national level.

Similar to other empirical studies, the study was bound to face several limitations. A segment of the respondents failed to provide first-hand information, thus posing a challenge to the researcher. Other limitations that the researcher faced during the study include financial constraints, poor road-network, language barrier, and time constraints. In an attempt to prevent such limitations, the researcher obtained relevant supportive documents from the University, KFS commission, and local authorities to ascertain that the study was conducted mainly for academic reasons. In the same breath, the researcher maintained high level of confidentiality and adhered to other ethical principles during the study.

### **1.7 Definition and Operationalization of Key Concepts**

The clarification of the definitions of the key concepts serves as a means of operationalization of how these key concepts would be applied throughout the project.

#### **Decentralization:**

The Oxford dictionary defines decentralization as the process of transferring or distributing power, authority, things, or people from a central administrative location to other locations. According to Clarke (2008), decentralization is the process of delegating power and authority in decision-making process from a central administration to lower arms of governance. Ostrom and Agrawal (2001) view decentralization as a democratic strategy constituted by either external or internal actors to facilitate devolution of power closer to individuals or agencies mostly affected by the exercise of power. In this study, the term decentralization will connote the transfer of power or authority in the management and conservation of forests from the central government to other lower arms of governance at the local level.

**Community Forest Associations:**

According to Smoke (2003), a community is a group of individuals with distinct characteristics and residing in a given geographical location and share common historical and cultural heritage. He also defines an association as a group of individuals with a formal structure and branded jointly to realize a given purpose. The Forest Act of 2005 defines Community Forest Association to mean people who live adjacent to forests, and who have been formally registered to engage in community forest management, and sustainable exploitation of forests and allied resources. These people can be given user rights as it may be agreed upon between them and KFS. In this arrangement, the purpose is to involve communities in the co-management of forests for sustainable utilization. For the purpose of this study, the concept will connote individuals residing adjacent to forests and actively involved in forest management and conservation efforts at the local level.

**Community Participation:**

Smith (2010) defines participation as the process of communicating and working together with varied people to realize a common goal. The Oxford dictionary defines participation as the process of conveying information on planned projects on the public, integrating the public on decision-making process, and granting the public power and authority to control the outcome of a given project. The World Bank (2007) defines participation as a process that stakeholders employ to influence and share control over resources, developmental initiatives, and outcomes that affect them (FAO, 2008). In this study, the term community participation will mean the process of involving and granting local communities power and authority to influence and share control over decisions on forest conservation and management practices.

**Participatory Forest Management:**

Warah (2008) defines participatory forest management as an approach where the involved parties consent to enter into a mutually enforceable agreement that indicates their roles, benefits, responsibilities, and authority in the management and utilization of specified forest resources (Matiku, Caleb & Callistus, 2013). The Forest Act of 2005 establishes management plans and agreements that form the basis for introduction of PFM, and the integration of community participation in the management and conservation of forests.

The Act further prescribes that local communities are to form CFAs and enter into an agreement with KFS to undertake activities of forest protection and conservation. Therefore, the benefit is shared between the state and forest-adjacent communities. In this context, PFM connotes a mutually enforceable plan that sets out the roles, responsibilities, authority, and benefits of government agencies and forest-adjacent communities to promote sustainable the management and conservation of forest resources.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.0 Introduction**

In this chapter, the works of other scholars would be reviewed and presented. The review will mainly articulate the role of community participation in conservation and management of forests at the global, regional, and national echelons. The influence of decentralization process on promoting sustainable forest management through adoption of PFM approach and the establishment of CFAs would also be highlighted. This chapter would also touch on a conceptual and theoretical framework that forms the basis for the study.

#### **2.1 Decentralization of Forestry Management**

For the last three decades, Kenya and other African states adopted a centralized form of governance that proved not to be the best choice for spearheading development. This assertion is anchored on the fact that, a centralized form of governance concentrated powers and authority to the state agencies, thus lowering government's performance in the provision of essential services. However, the increased scrutiny of government's performance at the international level coupled with need to enhance quality of life compelled the government to integrate the concept of decentralization and community participation in governance, and in the management of forests and other natural resources (UNDP, 2013). Scholars have echoed the assertion that communities, indigenous people, and institutions play an integral role in supporting sustainable forest management initiatives, but this goal can only be realized when the government adopts the concept of decentralization in decision-making processes (Gibson, McKean & Ostrom, 2000). The idea of embracing decentralization grants local communities and institutions power, property rights, and authority to share benefit and control of managing and conserving forest resources (Spathelf, 2010).

Although decentralization promotes equity, efficiency in the management of biodiversity and forest resources, many scholars hold the view that, it is not a single continuum model as it encompasses varied decision-making modalities. Based on the arguments of most scholars, it is clear that decentralization is a key component for not only enhancing efficiency in forest conservation and management, but also an indispensable construct in promoting rapid, equitable, and sustainable economic development in rural areas. Smith (2010) reviews decentralization as

an imperative strategy for reducing the asymmetric gap between information and knowledge. This asymmetric gap arises from the fact that, those individuals or agencies with authority to solve a given problem lack concrete information on how to solve that particular problem(s) (KFS, 2012). Consequently, those individuals or agencies with knowledge to solve a given problem have the least authority to solve the identified problem (s). Therefore, decentralization promotes cooperation between decision-makers at the national level, and actors at the local level; a move that renders it easier for the involved parties to access information and technical skills required to address the issue of forest degradation, and other enduring environmental problems (Mwangi & Njuguna, 2010).

While there have been consented efforts, especially through the enactment of policies and laws to promote decentralization and collaborative modalities in the management of forest resources, the government understands that, the efficiency and efficacy of decentralized reforms in the management of forest resources is influenced by the type of approaches the government adopts (Tacconi, 2007). Participatory Forest Management (PFM) is one of the major approaches adopted by most countries including Kenya to promote collaborative forest management practices, and encourage communities to participate in forest management and conservation programs. As a contingency of the wider community forestry program (CF), PFM has remained an imperative construct in establishing an effective framework to facilitate collaboration between state agencies and communities to create sustainability in forest management (KFS, 2012). In most cases, local communities and the state formulate management plans and sign agreements, which form the basis for implementing PFM. Although the process and modality of implementing PFM varies from one nation to the other, scholars affirm that there are two main approaches of implementing PFM namely: Joint Forest Management (JFM), and Community Based Forest Management, denoted as (CBFM) (Mwangi & Njuguna, 2010). Under the JFM arrangement, the state and local communities collaborate in managing and conserving forests, but the involved stakeholders' share benefits that accrue from co-managing forest resources. However, under CBFM, the power and authority to manage and exploit forest resources is completely devolved to local communities and the government mainly renders advisory services.

In Kenya, PFM remains a relatively new concept and principles for implementing PFM practice have not been fully formulated, thus raising uncertainty about the type of approach that should be



adopted. Although this is the case, the current practices exhibit strong elements of JFM model that is widely practiced in India, Tanzania, Nepal, and in other nations (Smoke, 2003). For instance, PFM practice was implemented in India as means to curb forest degradation, and create a sustainable forest management system. The enactment of the National Forest Policy of 1988 in India acted as a catalyst to encourage local communities to participate in forest management efforts as a means to address impending ecological problems in the country. In Nepal, PFM practice was introduced out of the growing concern to address the issue of environmental degradation in the mountainous regions of Nepal. A part from this, the Nepal government was compelled to implement PFM practices as a means of combating forest and environmental degradation-that had debilitating effects on biodiversity and other tenets of the society (Agrawa l& Ostrom, 2001).

In Tanzania, the enactment of the Forest Act of 2004 led to the inception of PFM approach. The act grants local communities equal ownership rights, authority, and power as state agencies to participate in forest management efforts and share social-economic benefits, which accrue from engaging in conservation practices. The Tanzania government not only embraced PFM approach to enhance forest management efforts, but also to alleviate poverty levels in marginalized areas. In Kenya, the enactment of the Forest Act of 2005 played an integral role in encouraging communities adjacent to forests to participate in forest and management practices. The act sets the principles for the implementation of PFM approach and the integration of communities in forest management efforts through CFAs. Under the provisions of the act, communities adjacent to forests are lawfully expected to form and register CFAs with different forests in the country and share benefits that accrue from participating on forest management efforts with state agencies (Matiku, Caleb & Callistus, 2013). The Kenya Forest Service (KFS) is a semi-autonomous body constituted to implement principles of PFM and co-manage forest resources with CFAs, County Councils (CCs) and other involved parties. In order for KFS and CFAs to collaborate in management of forest resources, they need to enter into enforceable agreements and management plans. The act also envisions that all CFAs should be vetted based on the following accounts before being allowed to co-manage with the KFS: composition of their management committees, their objectives and goals, and purpose for their funding (Government of Kenya, 2005). According to a study done by Ongugo (2008), affirms that, there is need to educate communities adjacent to forests the importance of participating in forest management

and conservation practices, and the extent to which new forest act and other legislations influence their participation on forestry management programs. The researcher further postulated that all CFAs should draft a constitution that would form a basis for their governance; a move that would strengthen frameworks for forest management in the country. A study done by the Research Action in 2009, affirms that, the first pilot study on the impact of PFM through CFAs on poverty reduction was done in 1997 at Dida in Arabuko-Sokoke, Coast region (Matiku, Caleb & Callistus, 2013). Other similar studies have been carried on Mount Elgon ecosystem, Mount Kenya region, Kakamega forest, and in other water catchment zones.

## **2.2 Community Participation on Forestry Management and Conservation Practices**

For the last two centuries, many nations adopted a centralized form of governance that formed forestry policies that alienated local communities from management of forest and other natural resources. Lack of effective and inclusive forest policies and legislations fuelled the problem of forest destruction and environmental degradation and this trend fuelled conflict between local communities and government agencies because there was scarcity of forest resources. The need to curb forest destruction, and escalating resource scarcity was one of the reasons that compelled communities to push for the enactment of new policies and laws, which would promote community participation on forest management and governance (Gibson, McKean & Ostrom, 2000). Lise (2009) articulates that, effective public participation is realizable when communities participate in decision-making process, planning, organization and implementation of projects. She further postulates that, concepts of participation are anchored on three main tenets namely; incorporation in evaluation and decision making process, benefit and contribution to developmental projects (Mwangi & Njuguna, 2010). According to Titus (2014), participation is a comprehensive and inclusive approach designed to integrate and mobilize local communities make decisions to conserve natural resources and control activities that influence their lives. Titus (2014) further asserts that local communities should be accorded powers, rights, and authority as other stakeholders in the management and conservation of natural resources; considering that, they directly depend on forest resources for their livelihood.

Most nations including Nepal, India, Canada, America, and other developing nations in Africa adopted community-based approaches in an attempt to increase community participation in the management of forests and other natural resources. India and Nepal were the first nations to

integrate the concept of community participation through policy formulation and adoption of effective collaborative approaches in forest management (Musyoki, Mugwe, Mutundu & Muchiri, 2016). During the 1980s, India experienced alarming rate of forest destruction and communities formed small protection groups and established laws to govern the exploitation and use of forest resources to address the issue. The enactment of the National Forest Policy in 1988 by the Indian government reinforced the need to integrate communities and indigenous people in the management of forests. To endorse the role of communities in forest management further, the Indian government introduced the National Joint Forest Management in 1990; granting communities more responsibilities, power and rights in managing public forests (Maharjan, 2005). The idea of integrating community participation in forest management through PFM and other collaborative approaches has helped to increase forest cover in Orissa, Kurdha, and in other areas in India.

Nigeria, Tanzania, Uganda, Morocco, Senegal, and other African nations have embraced community-based approaches used in Nepal and India to increase community involvement in forest management. A study done by Titus (2014) on the level of community participation in the conservation of natural resource in Akampa area, Nigeria, affirms that sustainable forest management can be realized through integration of community participation in decision-making, organization and implementation processes. Titus postulates that community participation should be viewed as an effective tool to empower communities and increase efficiency in environmental management. The aspect of including communities in decision-making and implementation processes tend to strengthen conservation ethics because communities understand that their existence depend on how they conserve the environment (Guthiga, Mburu& Holm-Mueller, 2008).

Tanzania has integrated communities in forest management for many years, but under small-scale arrangement. A study done by Iddi (2010) on community participation in forest management in Tanzania affirms that, some of the forests in Kilimanjaro, Rukwa, and Shinyanga areas are conserved and managed by communities for traditional rituals. The researcher also

established that forests that are managed through community-based approaches are granted more respect by the concerned communities, thus they are effectively managed. The Tanzania government has enhanced community involvement in forest and natural resource management through the enactment of effective forest policies. The enactment of the 1998 National Forest Policy paved way for inclusion of communities in management of forests, woodland, and other natural resources. The policy granted communities the right, power, and responsibilities to be co-managers of public forest resources via PFM, JFM and other collaborative approaches. In a move to encourage community participation in forest management, the Tanzania government enacted the Forest Act of 2004 and amended the National Forest Policy of 1998. As a result of this, Tanzania has made remarkably strides in increasing its forest cover, stabilizing degraded ecosystems and improving efficiency in forest management.

Kenya has a vibrant forestry sector that plays a crucial role in facilitating economic growth and development. Like other developing nations, Kenya has experienced high level of forest destruction and environmental degradation for many years; a trend that has compelled the government to engineer effective strategies to revive the sector. According to Ongugo (2008), Kenya experienced high level of forest destruction because of lack of inclusive and relevant forest policies that encouraged communities to participate actively in forest management programs. The forest policies that the government employed were ineffective because they alienated communities and other stakeholders in forest management efforts. In a move to revive the sector and reduce forest destruction, the government enacted effective forest legislations to encourage communities adjacent to forests to participate in forest conservation and management efforts. In 2005, the government through an act of parliament enacted the Forest Act 2005 that, endorses the role of communities and indigenous people in forest management. The Act grants communities power, right, and responsibilities to be contract managers or co-managers of forest resources (Ongugo, 2009). Communities that have an interest to co-manage forest resources with KFS and other stakeholders are required for form and register community forest Associations, (CFAs), as stipulated in Section 46(1) of the legislation. The KFS is required to enter in enforceable agreements and management plans with County Councils (Ccs), CFAs and other involved partners as envisioned in Article 2: Section 4 of the act (Mogoi, et al, 2012). Following the enactment of the 2005 Forest Act and other effective forest policies, more than 100 CFAs have been formed, thus inspiring communities to participate in forest and environment

conservation efforts in varied ecosystems. According to a study done by Matiku, Caleb, & Callistus (2013) on the impact of PFM on local community livelihood in Arabuko-Sokoke Forest, established that, the first case study on the role of communities in forest management through CFAs was done in 1997 in Dida in Arabuko-Sokoke, Coast region. The researchers further articulated that, the government did not intend to involve community in forest management in Arabuko-Sokoke forest, but it was compelled to do so by the adjacent communities. Through policy formulation, the government has managed to involve more communities in forest management efforts in different regions including; Mount Elgon, Mount Kenya, Kakamega forest, Cherangany forest, Mau forest ecosystem and other small ecosystems. This is a clear indication that the government recognizes communities as key partners in spearheading efforts to conserve and management forest resources, and stabilizing degraded ecosystems.

### **2.3 Challenges Facing CFAs Members in Managing and Conserving Forests**

CFAs experience a multiplicity of challenges that hinder them from realizing their forestry conservation goals; some of the challenges that affect them include lack of information about forest resources. For instance, CFA's are tasked with protecting water catchment areas, but most of the CFA members are not aware that some trees should not be planted near water catchment areas because of the impact they might have on destructing the normal flow or water.

Corruption in Kenya has been institutionalized in such a way that lawbreakers can bribe their way out of an offense or can acquire forest resources through illegal means. Managers and/or CFA's members may be bribed to allow logging or illegal land use in the forest, a move that might pose a risk to the forest resource. A study done by Lele (2007) on the challenges facing CFAs envisioned that, CFAs face numerous challenges including lack of accountability and transparency, failure of some members to contribute registration fee, and dictatorial tendency among the members. The study further postulated that these challenges are the main factors that influence mismanagement and sustainability of CFAs hence, leading to their ineffectiveness. Similar assertions were echoed in a study done by Thurow in 1995 where lack of homogeneity among and within the CFAs had devastating impact on the sustainability of forest resources.

## **2.4 Factors Influencing Community Participation in Forestry Management**

The adoption of PFM and other community-based approaches has played an integral role in increasing the involvement of communities in the management of forests and other natural resources. Through PFM approach, local communities are accorded an opportunity to collaborate with other stakeholders in the management of forests and maintain balance in the ecosystem. Most nations including Kenya have embraced the idea of integrating communities in forest management because communities directly depend on forest resources for ritual, cultural, economic and social reasons, thus they are key partners in stabilizing degraded ecosystems. In most cases, communities experience a sense of ownership and respect when the government incorporates them in decision-making, planning, organization, policy formulation, and implementation processes; a move that motivates them to participate actively in government initiated forest management practices (Oliver, 2004). Consequently, communities tend to develop negative attitude and perception towards the state-initiated forestry management strategies when their views, opinions, and contributions are not considered during policy formulation and implementation processes. It is imperative for the government to consider the views and opinions of local communities and indigenous people when rolling out effective forest management programs in varied ecological zones.

In Kenya, the enactment of the Forest Act of 2005 has played a critical role in encouraging communities to participate in forestry management efforts through PFM approach. Under the provisions of the Act, it is a requirement for communities to form CFAs and enter into enforceable agreements with KFS for such communities to become co-managers or contract-managers of forest resources. Today, there are approximately 100 CFAs operating in more than 41 forests where indigenous people and communities are allowed to participate in forest management and conservation. Although communities through CFAs have contributed significantly in improving forest cover and rehabilitating degraded ecosystems, their participation in forestry management efforts is influenced by different factors:

### ***Community Awareness:***

Studies have shown that communities tend to respect forest resources that have cultural, religious, economic, and social value. According to Macharia (2013), The MijiKenda community in the Coastal region have protected and conserved the Kaya forests for religious purposes. Such

communities have undertaken the role of managing and conserving forest resources because they understand the benefit of engaging in forest management programs. In most cases, if communities are equipped with adequate knowledge, information and resources they tend to participate in forest management practices, thus promoting bio-diversity in the ecosystem. In order to increase community awareness and their involvement, the government should organize education forums to sensitize communities on the importance of protecting, conserving, and managing forest resources.

***Economic Factors:***

Scholars affirm that, communities conduct cost-benefit analysis prior making a decision to participate in forestry management practices. If the cost of conserving and managing forest resources outweighs the benefits, communities fail to embrace the idea of participating in forestry projects, and vice versa. Communities are not only motivated by finances and other tangible benefits, but also intangible benefits such as respect, recognition, fame, and social-cultural benefits.

***Benefit Sharing:***

The government has formulated and enacted effective policies that entail rules, responsibilities, and rights of parties engaged in forestry management efforts including sharing benefits accruing from forest management practices. For instance, the government has enacted the Forest Act of 2005 to encourage collaborative management of forests and other natural resources. Benefit sharing is an effective framework that is employed to share benefits accruing from forest management efforts among and between the involved parties-the state, community members, and non-governmental bodies. Benefit sharing formula should be fair to ensure equity in distribution of forest resources. In most cases, communities would be motivated to participate in forestry management programs if they have equal power and right to enjoy benefits of participating in conservation efforts. Additionally, communities may fail to participate in forest management programs if they feel the rules of engagement with KFS does not favor them and limits their bargaining power to benefit from the available opportunities.

## **2.5 Theoretical Framework**

This study was guided by the *Common Pool Resource Theory*, which postulates that, authorities managing a given resource need to formulate an effective strategy to allow the resource to be managed collectively (Smoke 2003). As a proponent of this theory, Elinor Ostrom (1993) postulates that, land and forest degradation challenges lead to the formation of “policy tools” that provide a framework within which users of the common pool of resource will follow (Ostrom, Gardner & Walker, 1994). Accordingly, the policy tools seek to curb impacts of increased population, especially on the demand for land. In order for a resource to be managed communally or collectively according to the theory, there are some factors that determine whether the resource can be managed communally or not; - availability of information, the extent to which resources can be beneficial, and the influence of biophysical conditions.

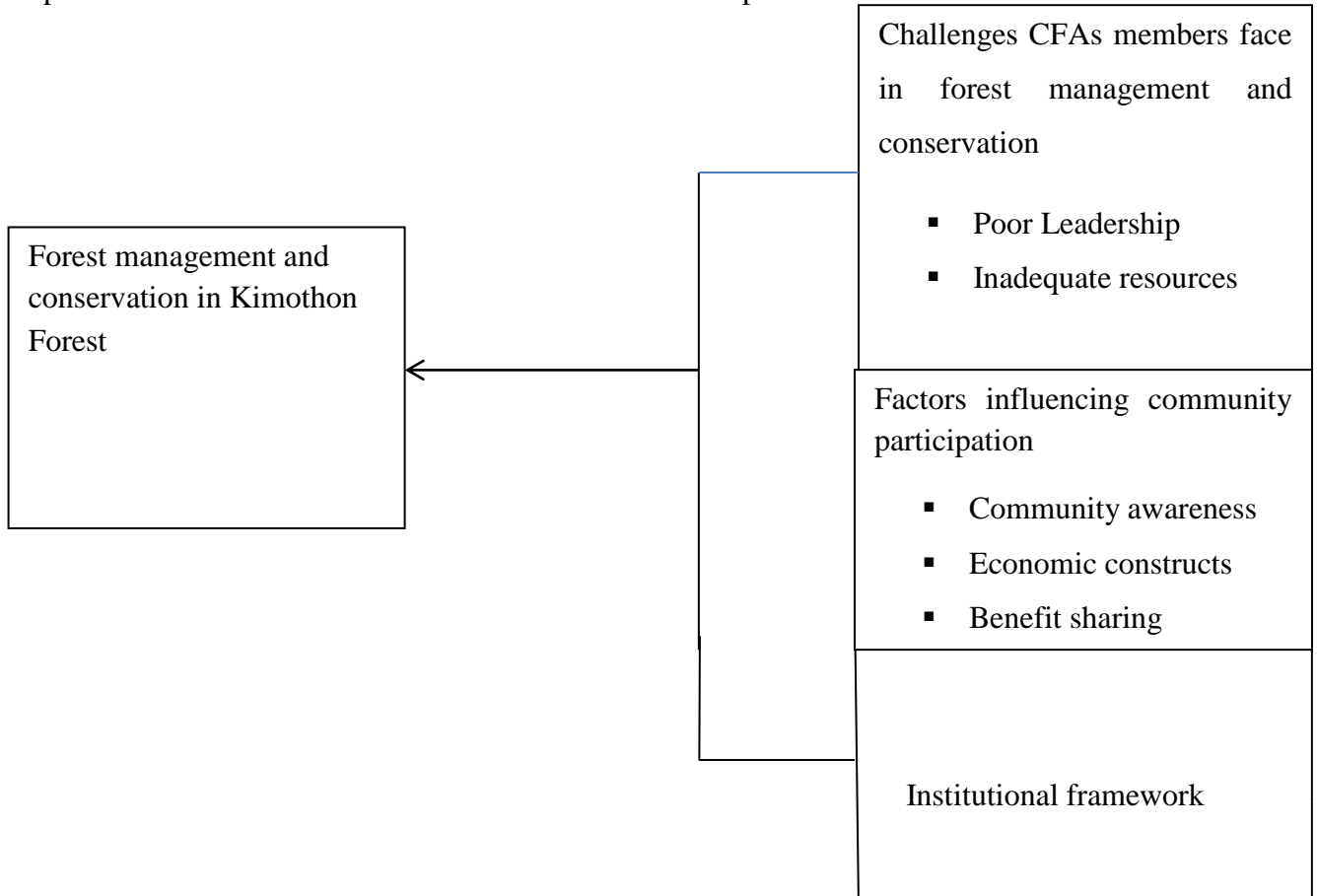
According to the *Common Resource Pool Theory*, the effectiveness of decentralizing the management of forest resource is anchored on the following aspects; the level of trust among managers, a shared understanding of the resource, ability of the community to organize and utilize the resource, and sustainability of the resource. Although, the theory fails to highlight the influence of adaptive governance on collective management, it is advantageous as it mainly focuses on the establishment of effective systems that compliments and rhythms with culture of communities involved in collective management of forest resources.



## 2.6 Conceptual Framework

Dependent variable

Independent variables



**Fig. 1.0 Conceptual Framework**

In this study, the role of community participation on forest management and conservation is the dependent variable and independent variables are the challenges that CFAs members experience, level of community participation and factors that influence community participation in forest management. Focusing on the factors that influence community participation in forest management, the study further established three major factors namely; community awareness, benefit sharing and economic constructs. Guthiga, Mburu & Holm-Mueller (2008) affirm that, these constructs directly influence the extent to which communities participate in forest conservation and management efforts.

## **2.7 Research Hypotheses**

The study intended to test the following research hypotheses.

- i) Shared benefits “have no effects” on the role of community participation in forest management.
- ii) Availability of effective institutional frameworks does not influence community participation in forest management.
- iii) Community awareness has no influences on the role of community participation on forest conservation and management in Kimothon forest.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

This chapter mainly describes and focuses on the research design, data collection procedures, target population, location of the study, sample size, instrumentation, and data analysis. The chapter also highlights the ethical principles and the general framework that the study employed to achieve the objectives.

#### **3.2 Study Area**

The study was carried out in Kimothon Forest in Trans Nzoia County. Kimothon Forest is one of the forest stations in Endebess Constituency in Trans Nzoia Country, in Kenya, and forms part of the water catchment area for Mount Elgon ecosystem. It lies South West of Kitale town and borders Uganda on the East. It is located in latitude 1.60 degrees and longitude 34.45 degrees (GOK 2010). The estimated terrain elevation of the forest is 2233 - 7336 meters above the sea level (GOK 2010). The total distance from Kimothon Forest Station to Kitale Town is about 53.3 kilometers. The forest lies on the east-west side of Mount Elgon National Park. Located in Mount Elgon ecosystem, Kimothon forest receives annual rainfall of about 1000-1300milimetres; with long rains being experienced from April-October, and short rains from October-November (GOK 2010). Generally, Kimothon forest has a cool and temperate climate and receives average annual temperatures of between 10-28 degrees Celsius. Bukusu, Sabots, Iteso, and Kalenjin are the main tribes that inhabit the entire Mount Elgon ecosystem.

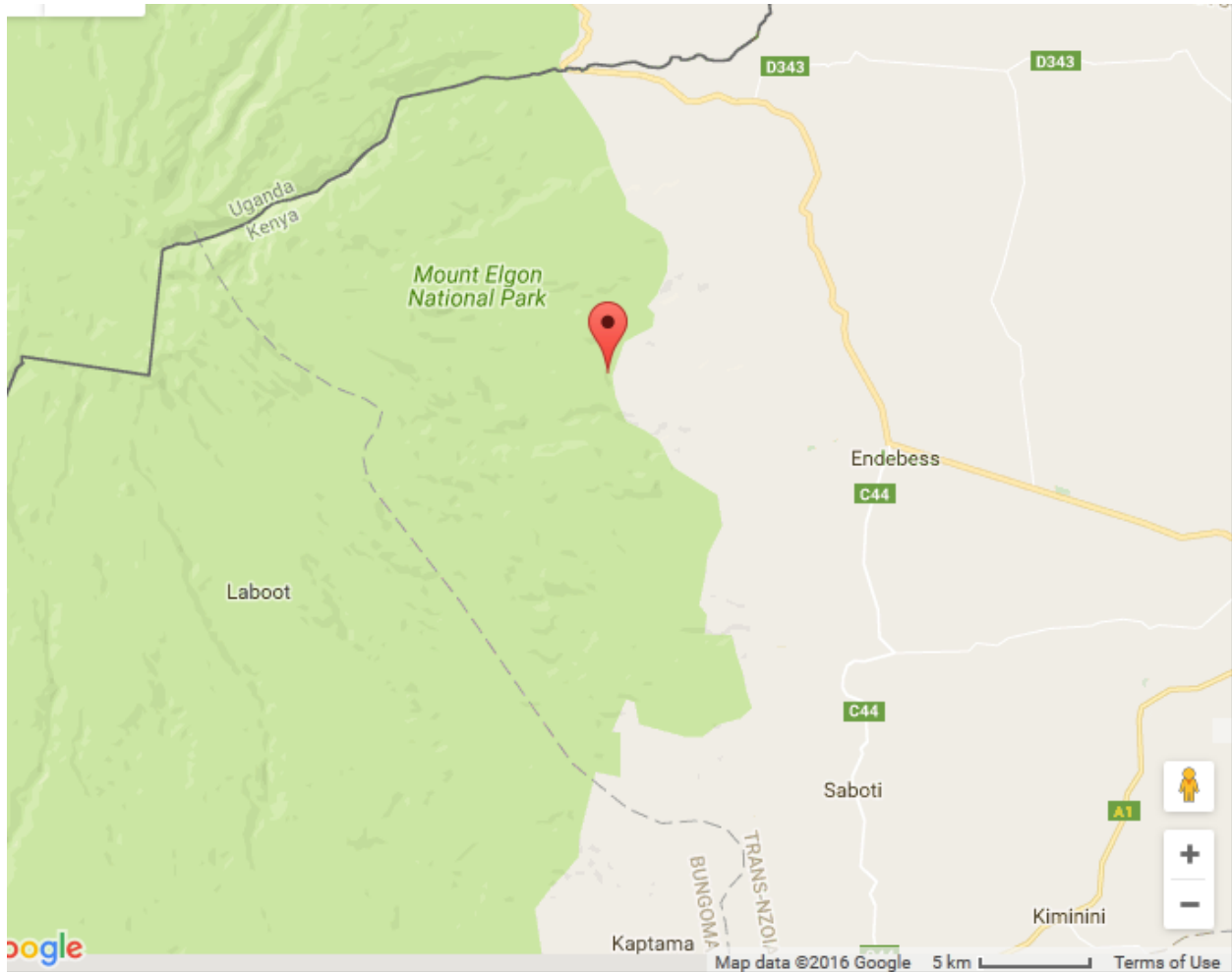


Figure 2: Map of Mount Elgon, Showing the study area of Kimothon forest station  
*Sources: Department of remote sensing and surveying; Lands at satellite image March 2010*

### 3.3 Study Area Selection

Kimothon forest was selected as the geographical context within which the research questions were explored. Kimothon forest is part of Mt. Elgon Forest, which is one of the five forest blocks of Mt. Elgon Forest. The choice of the study area is justified on four grounds. First, the existence of Kimothon Community Forest Association (CFA), and its long experience in PFM forms the basis for our study on the role of community participation in forest management in Kimothon forest, and at large, the Mt. Elgon forest complex. Secondly, Mt. Elgon features a long history of competing claims over forests involving excisions to settle political interests, encroachments, evictions, and violent struggles between different groups, thus it provides a good context for the study. Thirdly, Kimothon forest forms part of the larger Mount Elgon ecosystem that is one of

the five water towers in Kenya, and of tremendous importance to local livelihoods and to the nation in terms of a stable water supply for hydropower generation and the wider network of rivers, and lakes in East Africa. The results of this study will therefore, be of great importance in streamlining policy implementation, and adding knowledge to the existing literature.

### **3.4 Target Population**

The study-targeted communities adjacent to Kimothon forest mainly Kimothon CFA members and the Kenya Forest Service officers at the county and national offices and in Kimothon forest station. Based on existing statistical report, Kimothon community forest association has 85 registered members comprising men and women drawn from various ethnic communities in the area. The study target population comprised of 85 Kimothon CFA members, 10 KFS officials at Kimothon station, 15 senior KFS officials at the county office, and 25 senior KFS officials at the KFS headquarter. Therefore, the entire target population was 135.

### **3.5 Research Design**

The researcher employed a Descriptive Survey, as the research design of the study. This research design was relevant as it helps to describe the state of an event or phenomena as it is now. According to Mugenda and Mugenda (1999), a descriptive survey design is a detailed and scientific process of answering research questions aimed at describing and gathering data about the current state of subjects or an event- under investigation. The authors articulate that, a descriptive survey design employs descriptive statistics to describe and gather data about the subjects (Jackson, 2008). According to Mugenda and Mugenda (1999), this type of research design describes attitudes, values, characteristics, and possible behaviors of the subjects. This research design was also relevant to this study because it is less costly, in terms of time and resources, and helps the researcher to have a deeper understanding about the variables under investigation. More importantly, the researcher employed this research design based on the fact that, the study intended to examine an already existing aspect; the role of community participation in forest management and conservation.

### 3.6 Sampling Design and Sampling Procedures

The sample size was determined using Yamane (1967:886) formula for population sampling (Mugenda, 2008). Using this formula, 100 participants were selected from a sample population of 135.

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

**Where:**

Where: N: - is the population size of the study segment (135)

n: - Is the sample size of the study segment

e: - Is the desired margin of error (0.05).

$$n = \frac{135}{1 + 135(0.05^2)}$$

**n= 100**

The sampling frame is as presented in Table 1.0:

Table 3.1 Study Sample

<b>Strata</b>	<b>Population size</b>	<b>Sampling Units</b>	<b>Sample Proportion</b>
Senior KFS at the KFS headquarter	25	15	60%
Senior KFS county officials	15	10	66.7%
KFS at Kimothon forest Station	10	9	90%
Kimothon CFA members	85	66	77.6%
<b>Total</b>	<b>135</b>	<b>100</b>	

As depicted from Table 1.0 above, the researcher sampled 60% of the senior KFS officials at the KFS headquarters (using subjective sampling method), 66.7% of the senior KFS officials at the county offices, 90% of KFS at Kimothon forest station, and 77.6% of Kimothon CFA members. Out of the 100 participants who took part in the study, 66 were administered with questionnaires and the rest were interviewed.

### **3.7 Sampling Procedure**

The researcher used purposive, stratified and simple random sampling techniques to select 100 respondents from the population size of 135. The researcher employed purposive sampling method to select the Kimothon CFA members; considering they have a long term experience in participatory forest management. The Senior KFS officials at the KFS headquarter office, at the county level, and at Kimothon forest Station was stratified based on the various departments. The Senior KFS officials at the KFS Headquarters were stratified into five Departments each having five section heads. At the county level, the total number of employees was 15; the researcher used simple random sampling to select 10 officers. Purposive sampling was used to choose all the 85 members. The researcher then used simple random sampling to select 66 members from 85 members.

### **3.8. Data Collection Tools**

The researcher administered questionnaires, interview schedules and Focus Group Discussions (FGD) to gather primary data from the subjects. Open and close ended questionnaires coupled with structured interview schedules were used to gather primary data from the selected respondents. Questionnaires are effective tool for data collection as they enable the respondents to respond objectively. Additionally, it is easy to code participants' responses, thus enhancing data accuracy. On the other hand, interviews and FGD are effective tools of data collection as they help the researcher have a deeper upstanding about the construct under investigation, and they complement questionnaires.

### **3.9 Validity and Reliability**

Scientific studies are premised on empirical and verifiable data and researchers are required to consider this construct when conducting a study. In order to enhance accuracy and meaning of collected data, the researcher needs to design and employ data collection tools that maintain high level of validity and reliability. Validity connotes how accurately a test measure measures what it intends to measure (Jackson, 2008). In order to attain high level of content validity in this study, the researcher constructed questionnaires items and interview schedules items that aimed at answering the research questions and the research objective. In the same vein, the researcher employed a relevant theory to guide the study; an aspect that ensured that, high level of content validity was achieved during the study.

Empirical studies maintain high level of consistency in collecting, analysing and presenting data, and this study was no exceptional. In order to ensure internal consistency prevailed during the study, the researcher used *cronbach's alpha* reliability test to assess the reliability of the research instruments. After conducting the reliability test, the researcher attained a score of +0.546- that is considered average. According to Jackson (2008) a score of 0.5-0.6 is rated as (average), 0.6-0.7 is rated as (high), 0.7-0.8 is rated as (very high). In this case, the researcher had to adopt the instruments for data collection because it fulfilled this requirement. Additionally, the researcher corrected any form of inconsistency and weakness realized when conducting reliability test before carrying out the actual study.

### **3.10 Data Collection Procedures**

The researcher gathered secondary data via reviewing relative literature from journals, books, and other scholarly publications. The primary data was collected using structured questionnaires consisting of closed and open ended questions coupled with interview schedules, and focus group discussions. The researcher sought an introduction letter from chairperson of the Department of Political Science and Public Administration of the University of Nairobi to seek permission from relevant authorities to conduct the study. The researcher and his research assistants administered questionnaires to Kimothon CFA members, and later collected and consolidate them. The researcher gave interview schedules to the Kenya Forest officials in Kimothon forest station and at the county offices. Kenya forest officials were also interviewed in their offices directly by the researcher. Drop and pick method was employed to distribute the questionnaires to the CFA members during their meeting that is held on every first Monday of each month. The respondents filled the questionnaires and interview schedules and returned them to the researcher for analysis, interpretation and presentation. The researcher also used Focus Group Discussions to collect data from the key informants, Officials of Kimothon CFA.

### **3.11 Data Analysis and Presentation**

After collecting data, the researcher coded the filled questionnaires numerically and entered them for analysis using the Statistical Package for Social Science, denoted as (SPSS). After entering and cleaning the data, the generated data was analysed using descriptive and inferential statistics. In descriptive statistics, the researcher described the variables using percentages and frequencies. The researcher also used regression analysis to test the hypotheses. The researcher used tables and charts to present the research findings.



### **3.12 The Organizational Structure**

This research project is sectioned into five chapters. The first chapter is the introduction and presents the problem under study. It highlights the objectives of study and its importance. The second chapter reviews the literature, that helps develop the conceptual and theoretical approaches to the research questions. It then identifies the gaps in the existing literature, and guides study. It also concludes by discussing the main theory and concepts applied in the study. Chapter three describes area of study, research design and methodology, and justification of the study. Chapter four is the main chapter and discusses research findings. Lastly, chapter five summarizes and draws the conclusions as it makes the recommendations and the way forward.

## CHAPTER FOUR

### RESULT ANALYSIS AND PRESENTATION

#### 4.1 Introduction

This chapter provides an in depth analysis of the research findings and data as collected in the field. As eluded earlier, the study aimed at examining the role of community participation on forest management and conservation in Kimothon forest. In addition, the research aimed at finding out the extent to which community participation has influenced forest management and conservation efforts in Kimothon forest and the challenges that CFA members encounter in managing and conserving the forest. Furthermore, the study aimed at exploring the factors that influence community participation. This chapter is organized into two sections. The first section provides information on the demographic characteristics of the participants and their knowledge on forest management and conservation practices. The second section gives a comprehensive analysis of the responses of the participants in respect to the research objectives.

#### 4.2 Response Rate

Out of the 100 participants who took part in the study, only 93 managed to fill the questionnaires and interview schedules and return them for editing, and analysis. In this regard, it can be inferred that, the response rate was 93%, which was sufficient to generalize the findings of the study. As per table 1.1 below, 93.3% of senior KFS officials at KFS headquarters, 80% of KFS officials at the county level, 88.9% of KFS officials at Kimothon station, and 95.5% of CFA members in Kimothon responded during data collection. According to Mugenda and Mugenda (2003), a sample response rate above 50% is recommendable for generalizing the findings of the study. In this case, the response rate was 93%, thus fulfilling the requirement of the study.

**Table 4.1: Response Rate**

<b>Strata</b>	<b>Sample Size</b>	<b>Response</b>	<b>Response Rate</b>
Senior KFS officials at the headquarter	15	14	93.3%
Senior KFS officials at the county offices	10	8	80%
KFS at Kimothon Station	9	8	88.9%
Kimothon CFA members	66	63	95.5%
<b>Total</b>	<b>100</b>	<b>93</b>	<b>93%</b>

### 4.3 Demographic and Background Characteristics of the Respondents

This section provides a brief summary about the distribution of the participants in the following aspects: gender, age, education level, and other social-economic constructs.

**Table 4.2: Gender Distribution of the Respondents**

<b>Gender of the Respondents</b>			
	Frequency	Percent	Cumulative Percent
Male	35	55.6	55.6
Female	28	44.4	100.0
<b>Total</b>	<b>63</b>	<b>100.0</b>	

In the above table, there is almost equal gender distribution between male and female respondents, which accounted for 55.6% and 44.4% respectively. This gender distribution was attributed to the fact that, the culture of the study area is relative accommodative and flexible, thus allows women to participant in many development and empowerment projects including conserving and managing forest and other natural resources. Based on the responses given out by Mr. Joseph Kinyanjui, the Zonal Forest Manager, during an interview held on 7<sup>th</sup> August, 2017 at his office, in Kimothon Forest, it was evident that, women benefit more by collecting firewood and grass for their livestock; a move that has compelled them to join Kimothon CFA, thus reducing gender parity<sup>1</sup>. Additionally, following the promulgation of the Constitution in 2010, women's mandate to own property was greatly enhanced; a move that has allowed women in the area own land and engage in other economic activities. Therefore, these constructs have contributed in reducing gender parity in forestry management and conservation efforts.

<sup>1</sup>Responses on distribution of respondents by age [Personal interview]. (2017, August 7)

**Table 4.3: Age of Respondents**

	Frequency	Percent	Cumulative Percent
below 25 years	7	11.1	11.1
26-35 years	10	15.9	27
36-45 years	20	31.7	58.8
above 46 years	26	41.3	100.0
Total	63	100.0	

Table 4.4 : Showing the Distribution of Respondents by Age

Based on table 1.3, the participants were grouped into various age sets of class intervals of 10 years. The age of the respondents was distributed from below 25 years to above 46 years, but participants below 25 years had the lowest frequency and those above 46 years had the highest frequency. It was realized that, majority of the respondents were above 46 years. The researcher also noted that, respondents above 46 years were more than respondents below 25 years especially, among the Kimothon CFA members. This assertion depicted that, older people than youths were more willing to participate in forest management and conservation efforts by joining Kimothon CFA. Unlike the youths who advocated their time to other commitments, older people committed their time in forest management and conservation because they had an interest in protecting the forest and conserving the environment. Mr. Stephen Muluka, the Forester, echoed the same sentiments; during an interview that was held on 7<sup>th</sup> August, 2017 at his office at Kimothon forest station. In his account, Mr. Muluka alluded that youths were least involved in forest conservation and management efforts in the area because most of the time they were in urban areas either seeking employment or pursuing education, thus leaving the elderly people to participate in forestry conservation and management practices<sup>2</sup>. Additionally, older people had families to take care for, thus they depended on forest resources to cater for their needs. In this

<sup>2</sup>Distribution of respondents by age [Personal interview]. (2017, August 7<sup>th</sup>)

study, respondents above 35 years showed the highest level of participation in forest conservation and management efforts, but other empirical studies show conflicting outcomes in respect to the influence of age on forest conservation and management practices. For instance, a study done by Zhang (2007) revealed that, age had no influence on participation level on forestry activities. However, another study done by Smith (2010) indicated that age was a major factor in influencing and explaining participation level in forestry activities among various age groups. Smith (2010) established that, more youths were willing to participate in forestry conservation and management practices; contrarily to most studies where old people are more involved in Participatory Forest Management practices through CFAs.

**Table 4.5 : Length of Time the Respondents Have Been Members of Kimothon CFA**

	Frequency	Percent	Cumulative Percent
less than 1 year	5	7.9	7.9
2-3years	10	15.9	23.8
4-5years	18	28.6	52.4
above 6 years	30	47.6	100.0
Total	63	100.0	

Responses of the respondents on how long they had been members of Kimothon CFA indicated that, only 7.9% had been members for a year. It was established that, about 47.6% of respondents have been active members of Kimothon CFA for more than 6 years; a move that has enabled the association to enhance forest conservation and management efforts in the area. Based on the responses given out by the area County Conservator of forests, Mr. Nicodemus Mwatika, in an interview held on 8<sup>th</sup> August, 2017 at the County office in Kitale Town, it was clear that a

majority of the CFA members in Kimothon forest station joined the association since its inception<sup>3</sup>.

**Table 4.6 : Education Level of the Respondents**

	Frequency	Percent	Cumulative Percent
No Primary Education	5	7.9	7.9
Primary	32	50.8	58.7
Secondary	12	19	77.8
Tertiary/University	7	11.1	88.9
Other	7	11.1	100
Total	63	100.0	

Table 1.5 above, depicts that, 50.84% of respondents had attained Primary education, 19% secondary education, and 11.1% had attained tertiary education. Based on this fact, it can be deduced that, nearly 88.9% of the participants were literate, as they had attained either primary or secondary education. Based on responses, there was no relationship between the level of education and access of forest resources. The adjacent communities had equal opportunity to access various resources from the forest including grass, firewood and grazing areas; irrespective of their education level; an aspect that resonates with results of a study done by (Tacconi, 2007) that, indicated that there was no association between the level of education and access of forest resources. Although this is the case in this study, other empirical studies have shown that education level has influence on dependency on forest resources as it provides more job options for individuals. For instance, people with high-level education may not opt to use firewood as a source of energy due to the high opportunity cost involved in collecting the firewood. Contrary to the research finding of Oliver (2004) that affirmed that, the level of education does not

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<sup>3</sup>Duration of time Kimothon CFA members have been members [Personal interview]. (2017, August 8<sup>th</sup>).

influence community awareness about forestry conservation and management practices, the research findings in this study envisioned that, the level of education tends to increase one's awareness on the importance of participating in forestry and environmental conservation practices. Education is an imperative factor in enabling Kimothon CFA members to understand the implication of new forest policies and forest conservation strategies.

#### **4.7 Result Presentation**

As eluded earlier, this study focused on examining the role of community participation on forest management and conservation in Kimothon forest. As in other empirical studies, the study was guided by three objectives. The first objective aimed at assessing the influence of community participation on forest management and conservation in the forest. The second objective aimed at identifying the challenges that Kimothon CFA members face while conserving and managing the forest. The third objective aimed at establishing the factors that influence community participation on forest management and conservation efforts in Kimothon forest. These objectives formed the basis for result presentation and analysis.

#### **Objective One: The Influence of Community Participation on Forest Management and Conservation in Kimothon Forest**

According to the County Executive Committee member in charge of Environment Mr. Maurice Lokwaliwa, the county highly supports the involvement of communities in conservation of forests. The county has been allocating funds for the CFA to raise more seedlings and has channeled the funds through the agro forestry program<sup>4</sup>. From the survey, when the respondents were asked to give out their views on whether they supported the idea of integrating community participation to enhance conservation and management efforts in Kimothon forest, 95.2% confirmed that, indeed they supported the initiative to integrate adjacent communities in forestry conservation and management practices in the area as depicted in Table 1.6. The respondents articulated that, integrating adjacent communities in forest management and conservation practices paved way for them to collaborate with the government, KFS and other stakeholders to co-manage utilization of forest resources and mitigate adverse effects caused by ecological and environmental degradation in the area. The Chief Conservator of Forests Mr.

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<sup>4</sup>Influence of community participation on forest management and conservation [Personal interview]. (2017, August 9).

Emilio Mugo affirmed that community participation as well put by the Forest Conservation and Management Act, 2017 is the way to go if the country needs to attain the recommended 10% as per the country's vision 2030. According to the survey, respondents cited many economic, social, and cultural reasons that prompted them to participate in forest management and conservation activities in Kimothon forest. A part from utilizing forest resources and improving their livelihood, increasing forest cover and rehabilitating ecological and biophysical systems in the area were some of the key aspects that influenced the respondents to support the integration of community participation in forest management and conservation activities in the area. The same response was given by Mr. Philip Koros, the County Chief Officer during an interview held on 9<sup>th</sup> August, 2017 at the County offices in Kitale Town<sup>5</sup>. Mr. Koros articulated that integrating local communities in conserving and managing forest has helped in creating an enabling environment for the government and other parties to collaborate with the local communities in managing forest resources sustainably. In an interview with Mr. Boniface Wasike, the Deputy Chief Conservator of Forests in charge of Plantations and Enterprise it emerged that, the move has also played an integral role in enabling the government to introduce new conservation strategies without experiencing resistance from the local communities; an assertion that was consistent with the responses given by Mr. Stephen Muluka, the Forester at Kimothon forest station, and Mr. Joseph Kinyanjui, the Zonal forest manager. In their responses, Mr. Muluka and Mr. Kinyanjui unanimously agreed that, local communities tend to develop negative perception and attitude towards forest conservation initiatives if the government does not consider their decision in forest policy formulation and implementation processes.

When respondents were asked about on whether they agreed that community integration enhanced forest management and conservation, 95.2% were in agreement while only 4.8% contested as depicted in Table 1.6 below.

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<sup>5</sup> Influence of community participation on forest management and conservation [Personal interview]. (2017, August 9).



**Table 4.8: Show Respondents Responses about the Integration of Community Participation in Forest Management and Conservation**

Character	Frequency	Percent
Yes	60	95.2
No	3	4.8
<b>Total</b>	<b>63</b>	<b>100</b>

When the respondents were asked to indicate the extent to which the adjacent community was involved in forest management and conservation activities in Kimothon forest, 79.4% felt that the community was adequately involved and 19.6% felt that it was not adequately involved, as depicted in table 1.7.

**Table 4.9: Respondents Response on the Extent to Which the Community Participated in Forest Management and Conservation in Kimothon Forest**

	Frequency	Percent
Yes	50	79.4
No	13	19.6
<b>Total</b>	<b>63</b>	<b>100</b>

The survey findings further affirmed that, the community was involved in planning, monitoring, evaluation and implementation of forest policies and practices, thus it were not sidelined by the government in any matters related to forest conservation and management in the area. Involving the community members in all these processes makes them trust the government and feel it is their responsibility to formulate and implement sound decisions to enhance conservation efforts in the forest. Based on the responses given out from the focus group discussion and the interviews, it was evident that the local community was adequately involved in forest conservation and management efforts by the government and other parties. Majority of the Key

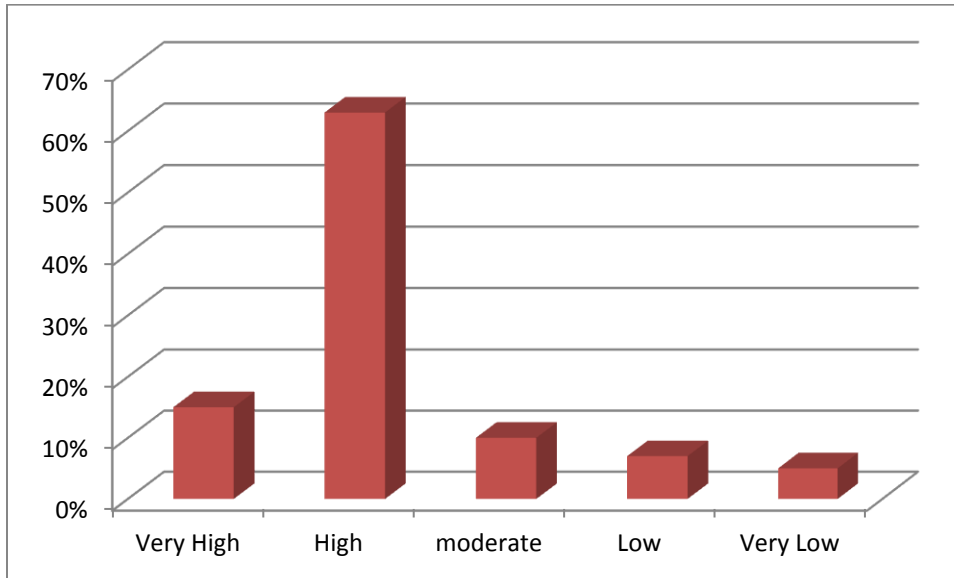
informants reported that, the government did not make any decision regarding conservation and management of forest resources in the area without involving the community. During the interview, Mr. Kinyanjui cited several examples that revealed the extent to which the community was involved in conservation and management efforts in the area. Mr. Kinyanjui articulated that, before introducing any new forest policy or conservation strategy in the area, all CFA members and various user groups are either sensitized, trained or empowered with the necessary knowledge and skills to ensure efficiency during the implementation, evaluation and assessment processes. He further asserted that, KFS officials at Kimothon forest station create awareness among the community members to ensure a consensus orientation of about 35% is attained before most decisions are undertaken; an aspect that had enhanced inclusivity, equity, and efficiency in conservation efforts in the area. In order to enhance community participation in forest management and conservation initiatives, the key informants suggested that the government should introduce more capacity building programs, sensitize and educate the community the importance of conserving and managing forest resources sustainably, and introduce income generating activities such as bee-keeping and establishing tree nurseries. In his account, Mr. Kinyanjui suggested that, the introduction of the Shamba System Cultivation in the area would enhance community participation and improve food security. He asserted that, not only does the Shamba system improves food security, but also increases the survival rate of tree seedlings by about 80% due to close attention and management as per the laid down rules.

### **Objective Two: Challenges which CFA Members Face In Managing and Conserving the Forest**

Decentralized forest management through PFM and other community-based approaches including CFAs remains a relatively new concept in Kenya. In this regard, many CFAs continue to experience numerous challenges that hinder their effectiveness in stabilizing degraded ecosystem, increasing forest cover and promoting sustainability in forest management. From the survey, the respondents' responses clearly depicted that the community and Kimothon CFA members experienced challenges in their effort to conserve and manage the forest. When asked to indicate the rate at which they experienced challenges, 57.1% of them indicated that they experienced challenges at a high rate, 19 % (very high), moderate (12.7%), 7 % (6.3) and 4.8% (very low), respectively. From their responses, they cited different types of challenges they encountered in their efforts to conserve and manage the forest including lack of information

(ignorance), corruption, inadequate resources, lack of accountability and transparency among the CFA officials. The respondents also confirmed that, the enlisted challenges had debilitating effect on forest conservation and management practices in the area. Various key informants in the Focus Group Discussion and the interviews echoed similar sentiments. According to the Chief Conservator of Forest Mr. Emilio Mugo, lack of adequate financial resources to improve the livelihood of adjacent communities is one of the main challenges linked with integrating the local community in forest conservation efforts. In his account, Mr. Mugo asserted that, communities weigh the benefits and cost associated with conserving the forest before making the decision either to support conservation efforts or not. He further postulated that, a community is mostly likely to participate in forest conservation efforts if the benefits are more than costs. To strike a balance between the benefits and costs linked with conservation initiatives, forest station managers need adequate financial resources so that they can invest in other income generating activities such as bee-keeping, and tree nurseries to improve livelihood of the community. Therefore, conservation measures should be linked with livelihood improvement programs so that the community can make informed decision to either support forest conservation initiatives or not (Matiku, Caleb & Callistus, 2013). According to Mr. Johnstone Gathaara, Director of Forests in the Ministry of Environment and Natural Resources, the government experience a lot of challenges as a result of integrating the local community in conservation efforts due to the high costs of compensation demanded by the community for crop damage and livestock deaths caused by wild animals and outbreak of diseases such as tsetse flies and ticks. Forests are homes for many wild animals such as elephants, warthogs and monkeys, which damage crops and even kill livestock. In an event a forest-dwelling animal has damaged crops or killed livestock in the area, the management is sometimes forced to offset the loss incurred through compensation to strengthen its cordial relationship with the adjacent communities who will otherwise clear the forest in effort to chase wild animals.

**Fig 4.1: Rating of Challenges faced by CFA Members in Conserving and Managing the Forest**



From Fig 3 above it was noticeable that majority of the CFA members admitted experiencing array of enduring challenges in their effort to enhance conservation and management activities in the forest. They also reported that other challenges including financial mismanagement, conflict of ideology and external influence did influence their conservation and management efforts.

The fact that challenges are inevitable in any form of community based Organization CFAs, there is need to institute effective mechanism to mitigate adverse effects associated with various challenges. In an interview with Mr. Johnstone Gathaara, Director of Forests in the Ministry of Environment and Natural Resources on 14<sup>th</sup> August, 2017 at The Ministry of Environment and Natural Resources State Department of Natural Resources Office NSSF Building, Nairobi, it was established that, inadequate funding at the grass root level was one of the challenges associated with decentralized forest management<sup>6</sup>. In his account, Mr. Gathaara blamed poor leadership coupled with mismanagement of little resources allocated to CFAs. Survey findings envisioned that there was a need for KFS officials to employ different mechanisms to address existing challenges encountered by CFA members. From the survey findings, about 65.1 % of the respondents indicated that dialogue was one of the mechanism employed to solve existing

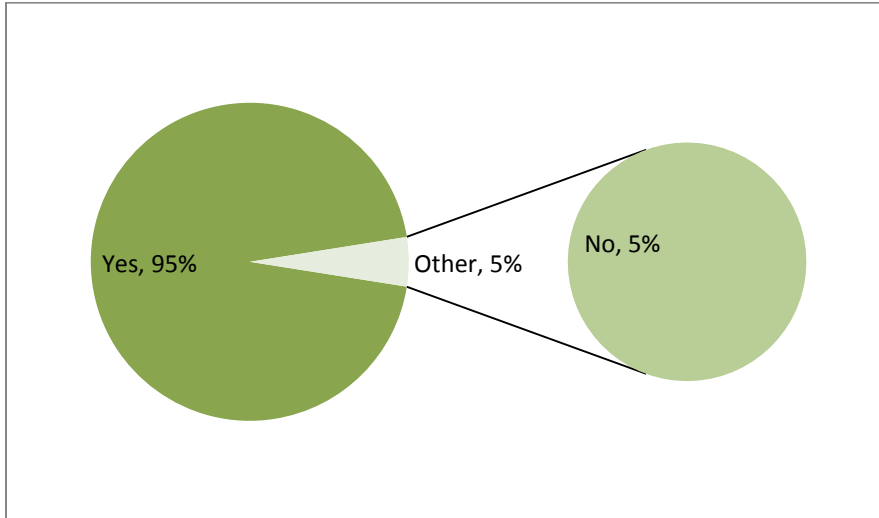
<sup>6</sup>Challenges influencing community participation [Personal interview]. (2017, August 14)

challenges among the CFA members. However, other dispute resolution mechanism including consultation (20.6%), and direct engagement (12.7%) were employed at different levels to address the impending constraints.

### **Objective Three: Factors That Influence Community Participation in Kimothon Forest**

When the participants were requested to give their views on whether they embraced the idea of integrating the community in forestry conservation and management practices in the area, 95% supported the initiative as depicted in Figure 4 below. Only 5% of the respondents felt that, the community was not embracing community participation to spearhead conservation efforts in Kimothon forest. Based on respondents responses, three main aspects influenced participation of CFA members and the adjacent community in forestry conservation programs namely; community awareness, economic factors, and benefit sharing. However, the researcher further established that other underlying factors-apart from those mentioned above did influence participation of CFA members and the adjacent community. In an interview with Mr. Koros the County Chief Officer, the researcher found out that political will of politicians in the area was also one of the underlying factors, which influenced community participation. In his account, Mr. Koros articulated that, politicians who do not support conservation and management efforts undertaken by the government tend to incite local communities and advise them to refrain from such activities; an aspect that lowers their participation level.

**Fig 4.2: Respondents Responses about Embracing the Integration of Community Participation in Forest Conservation**



Based on study findings, 75% of the respondents stated community awareness was a major factor that influences the level of community participation in forestry conservation and management practices. The study findings envisioned that most of the CFA members and the community participated more in forest conservation activities because they were aware that certain forest resources had economic, cultural, and social value to them. Furthermore, majority of CFA members and community members were willing to participate in conservation efforts in the forest because they derived essential resources such as firewood, water, and animal fodder from the forest. Availability of information and offering training on forest management and conservation approaches acted as motivating factor for the CFA members. Although this was the case, about 20% of the respondents stated that they were not only influenced by the economic, social, and cultural value associated with forest resources, but also by intangible benefits such as recognition and fame.

It was evident that, 89% of respondents confirmed that, there exist benefit sharing variance between CFA members and other stakeholders; an aspect that lowers participation level of CFA members and the community. The existing variance was caused by difference in power rights, and privileges among the partners in matters related to sharing benefits accruing from forest conservation and management efforts.

## CHAPTER FIVE

### DISCUSSION, SUMMARY, CONCLUSION AND RECOMMENDATIONS.

#### 5.1 Introduction

This chapter provides conclusion and summary of major findings on the role of community participation on forest management and conservation in Kimothon forest. It also provides an elaborate discussion about the link between the survey findings and the empirical literature. The chapter further highlights recommendations to be implemented and ends with suggestion for further research on gaps identified and considered important by the researcher during the study.

#### 5.2 Discussion of Findings

##### **Influence of community participation on forest management and conservation in Kimothon forest**

From the research findings, it was evident that majority of the respondents embraced the role of community participation in forest conservation and management efforts in Kimothon because the community depended on forest resources for their livelihood. The results derived from collected data in the study indicated that, 95.2% of the respondents supported the move to involve local communities in forestry managing and conserving programs. When communities are involved in forestry projects, they become motivated and feel it is their responsibility to sustainably conserve and manage forest resources. These findings were in line with Titus (2014), whose study established that, there is a need to involve local communities in decision making because communities need to control any activity that influences their lives. According to Iddi, (2010), he articulates that a community should be granted rights; responsibility and power so that it can effectively participate in forest conservation and management initiatives. He further postulates that, failure to grant the community members equal rights as other partners negatively influences their motivation; a move that reduces their participation on forestry conservation efforts.

The result findings also revealed that community members support the idea of community participation because social, economic, and cultural aspects prompted them. In the study, the researcher found out that, the adjacent communities have access to different forest resources including firewood, grass, grazing field, and timber; an aspect that clearly indicates that, the community directly depends on forest resources for their livelihood. The survey findings were in line with Titus (2014) whose study indicated that, forest provides a wide range of tangible

resources and non-consumptive services, which prompt different communities to participate in forest management and conservation programs. In the study, it also emerged out that adjacent communities did not only participate in forest conservation and management practices because of the tangible resources they derived from the forest, but because of the religious and social values they attached to the forest. According to a study done by Macharia (2013) on the factors influencing community participation on forest conservation projects, it shows that, the MijiKenda community at the Coastal region has protected, conserved and managed the Kaya forest for many years because the forest has a religious value to that community. This assertion indeed confirms that, a community can be motivated to participate on forest conservation practices because of the social, religious, and cultural values it attaches to different forest resources.

The research findings not only depicted that the majority of the respondents supported the involvement of adjacent communities on forestry conservation initiatives in the area, but also revealed the extent at which the government involved the community in planning, monitoring, implementation and evaluation processes. In the study, 55% of the respondents affirmed that, the government had tried to incorporate the community in decision making, planning, monitoring, evaluation and implementation process, thus enhancing participation level of the community members. Existing empirical studies have shown that, the role of community participation on forestry conservation and management efforts is not realizable if adjacent communities are not adequately involved in these processes. According to a study done by Lise (2009), shows that, effective community participation remains a mirage if the community members are not involved in planning, implementation, evaluation, and monitoring processes. Lise (2009) further affirms that, failure to involve a community in these processes compels its members to rebel against government-initiated conservation measures, thus hampering forest conservation efforts in the area. Therefore, the inclusion of the community members in these processes has a positive impact on their attitude towards forest conservation and management measures because they feel valued and their views respected by the government; a move that promotes efficiency and sustainability of forest resources.

The idea of integrating adjacent communities on forest conservation and management efforts cannot be underestimated as it has played a critical role in increasing forest cover, rehabilitating



degraded ecosystem, promoting equity, and addressing environmental challenges. Based on the survey findings, majority of the respondents affirms that, the concept of community participation has aided in increasing forest cover by 2% and improving enrichment of degraded ecosystems in Kimothon forest, especially through afforestation programs. These results are in line with the research findings by Matiku (2013) that shows the integration of community participation through PFM approach helped to increase forest cover by 5% in Arabuko-Sokoke forest. Matiku (2013) further envisioned that, it was possible to increase the forest cover by 5% in Arabuko-Sokoke forest because the introduction of Shamba system and other farm practices increased the survival rate of tree seedlings and enhanced afforestation and reforestation initiatives in the area. The results findings also envisioned that, the community aided in forest conservation and management practices because the CFA members participated in seedling planting, coordinated forest maintenance through pruning and floor clearing and formulated by-laws and conflict resolution mechanisms, thus relieving KFS officials that burden.

Based on the survey findings, it emerged that, the integration of community participation on forestry conservation and management practices reduced the cost incurred by the government and the community members while conserving and managing forest resources. Forests act as home to many wild-animals, which damage crops or kill livestock in the area. In the survey, the KFS officials indicated that, the government incurs colossal amount of costs as compensations to damaged crops or killed livestock by the wild animals. These findings resonates well with results of a study done by Lele, (2007) that reveals, that, the government paid a compensation of \$450,000 (2001-2003) to residents adjacent to Shimba Hills National Reserve for crops and buildings damaged by wild animals.

### **Challenges Faced by CFA Members in Managing and Conserving the Forest**

Like other Community Based Organizations, Kimothon CFA experiences a multiplicity of challenges that derail their efforts to conserve and manage forest resources sustainably. The results of the study revealed that, Kimothon CFA members encounter numerous challenges, which have debilitating impact on their efforts to conserve the forest. Majority of the respondents confirm that, they experienced numerous challenges including; lack of adequate resources, lack of information, poor leadership, conflicts among the CFA members, external influence, corruption and lack of transparency and accountability among the CFA officials. The findings of

the survey established that, poor leadership was one of the major challenges experienced by Kimothon CFA members. Results revealed that, 71% of leadership challenges emanated from lack of homogeneity among the CFA members coupled with dictatorial tendency of CFA officials. In the study, it emerged out that, most of CFA officials, especially chairpersons failed to value and respect views of the members in decision-making process, thus compelling the members to rebel against them. The results further indicated that, it was difficult to remove dictatorial CFA officials by external authority because most of them tend to bribe KFS officials at higher authority, thus rendering it impossible for the members to remove them from office. These findings were consistent with study findings by Ongugo (2008) that shows dictatorial tendency among CFAs officials remains a major leadership challenge experienced by CFA members while managing and conserving forest resources. Similar assertions were echoed in a study done by Matiku (2013) that postulate that poor leadership and conflicts among CFAs officials has led to mismanagement of resources and finances meant to spearhead forest conservation and management practices in the area.

The study findings also envisioned that lack of adequate resources was another enduring challenge that CFA members faced. Majority of the respondents claimed that inadequate resources in terms of finance and human resources hindered their effectiveness in conserving and managing the forest. Like other CBOs, the Kimothon CFA did not receive external funding from the government or development partners, but mainly depended on funds raised by its members through registration fees and other income generating activities. Considering that funds generated through such means was inadequate to purchase essential inputs such tree seedlings, stationery materials, and hire experts in varied fields to train the CFA members on effective agro forestry to promote sustainable forest management practices. Majority of the respondents agree that, CFA members need to be trained and equipped with skills and knowledge on how they can increase their income via value addition. These findings are in line with study findings by Maharjan (2005) who found out that, in Nepal, the involvement of community participation on forest management has created employment opportunities for communities adjacent to forests. Maharjan (2005) envisioned that, it was possible for the government to generate income and create employment for such communities because it equipped them with skills and knowledge on value addition, especially on honey, medicinal herbs and other products derived from the forest. It is obvious that if adequate resources are allocated to CFA members, more people will be

willing to participate on forest conservation efforts because availability of adequate resources will act as an incentive. These assertions are in agreement with those of Guthiga, Mburu, & Holm-Mueller (2008) who established that, the rationale behind community participation is that individuals will only participate if the benefits outweigh the cost incurred on forest management and conservation.

### **Factors That Influence Community Participation in Kimothon Forest**

The results of the study clearly indicate that community awareness has great influence on participation level of the community members towards forest management and conservation initiatives. Creating awareness among the community members helps them to understand the reasons why it is imperative to participate in forestry conservation projects. Majority of the respondents reported that they had prior knowledge and information that enhanced their awareness towards forestry conservation efforts. These findings resonates well with study findings by Smith (2010), who established that a community is more likely to participate and devote much of its time and resources on forestry projects, if it recognizes the benefits associated with accessing and utilizing forest products and services. Smith (2010) further affirmed that, a community would even modify its land use practices to promote sustainability in forest management and improve forest cover in degraded ecosystem. It emerged that, creating awareness, educating and disseminating information to the community members is an imperative strategy in resolving enduring environmental challenges. In essence, the findings confirm that, creating awareness paves way for the government to cooperate with the community in addressing environmental issues, which have debilitating impact on economic growth of the region. These findings are consistent with study results of Kinyanjui (2006) who established that creating awareness through education is a key strategy in mobilizing the community to address environmental issues and transform knowledge on conservation and management practices. Majority of the respondents stated that, enhancing community awareness through educational campaigns, seminars, and forums will play a key role in spearheading forestry management goals and increase community participation.

In the study, it emerged that economic constructs have significant impact on community participation towards forestry conservation programs. The findings envisioned that, 80% of the respondents participated on forest management practices because they derived certain products,

which have economic value to them. The respondents reported that they had access to a wide range of resources with economic value. Some of these resources include; firewood, timber, grass, and grazing field. Apart from participating in conservation programs for economic reasons, the community is also influenced by social and cultural aspects. This is a clear indication that, the rationale behind the community participation is anchored on the fact that, a community would only participate on forestry conservation programs if the benefits are more than the cost incurred. It was also established that CFA members and the members of the community participate in income generating activities such as selling tree seedlings, bee keeping, and harvesting medicinal herbs; a move that influences their participation. These findings concur with the study findings by Yemshaw, (2007)-to examine the influence of economic incentives in Kakamega, Arabuko-Sokoke and Mwingi ecosystems, that shows that value addition on honey, silk and other commercial forest products acts as incentives to promote collaborative forest management and conservation.

In the survey, it was evident that the issue of benefit sharing has great influence on the role of community participation on forestry programs. Majority of the respondents cited that benefit sharing should promote inclusivity, equity, and efficiency in the distribution of benefits, which accrue from conserving and managing forest resources. It is an effective strategy to ensure that the interests and rights of all involved parties are presented and respected by the management. Through their institutional frameworks, CFAs have laid down rules and policies, which determine how they share benefits from forest products. However, powers, rights, and privileges accorded to CFAs and other partners differ, thus creating variance in benefit sharing role. It emerged out that, most CFA members in Kimothon felt that KFS officials and other government agencies had more rights and power when it came to sharing of the benefits; an aspect that creates distrust among the parties. Therefore, there was a need to formulate a new strategy to address this challenge in a move to promote efficiency in forest management in the area.

### **5.3. Summary**

From the study findings, it was evident that, 55.6% of participants who took part in the study were male and female accounted for 44.4%. The findings envisioned that, majority of the participants were above 46 years, and they dedicated their time and resource to conserve and manage forest resources sustainably. The researcher established that the role of community participation cannot be underestimated as it has helped in increasing forest cover, enriching and rehabilitating degraded ecosystem, and promoting efficiency in forest management in the area. It was noted that, effective community participation could only be realized if the government involves community members in decision-making, monitoring, evaluation, and implementation processes. The inclusion of community in the aforementioned processes not only facilitates collaborative management and creates trust between the involved parties, but also act as an effective strategy in addressing environmental challenges in the area.

The study established that poor leadership coupled with inadequate resources were key challenges that hampered the efforts of CFA members. Majority of the respondents confirmed that poor leadership fuels conflicts among the members, thus de-motivating the members. On the same breath, the respondents cited that dictatorial tendencies among the official of the association has affected the community participation and contribution in addressing environmental challenges in the area. The study found out that, the participants lacked adequate funds to enable them carry out their roles and responsibilities; an aspect that lowers their performance.

Based on the study results, it emerged that, economic constructs, community awareness and benefit sharing are key aspects that influence community participation. Majority of the respondents indicated that, they participate on forest conservation and management practices because they derive a wide range of forest products. It was vividly clear from the study that, benefit sharing influences community participation. The survey findings confirmed that, benefits were not shared equally among the involved parties, thus fuelling conflicts of interests and derailing conservation efforts in the area.

#### **5.4 Conclusion**

Based on study results, the role of community participation is an effective strategy in transforming knowledge and addressing environmental challenges. It should be noted, the role of community participation on forest conservation and management is a contingency of various challenges that CFA members face and factors that influence their participation. Poor leadership coupled with inadequate resources tends to hinder the community from participating on forestry conservation practices. Lack of effective leadership in the association fuels wrangles and conflicts among the parties, and this reduces participation level of the community. Furthermore, equate resources fuels conflicts and wrangles among the community members as group members' fight over the limited resources. It also emerged that, apart from these challenges, economic constructs and benefit sharing are key factors, which greatly influence the participation of the community. The respondents cited that enhancement of community awareness will act as an eye-opener to the community, hence enhance their participation.

#### **5.5 Recommendations**

- i. The government should institute more community-based enterprises and income generating activities to enhance community participation. A part from providing Kimothon CFA members with funds to establish tree nurseries and practice bee keeping, there is need to establish enterprises that focuses on value addition on forest products. The Zonal manager in collaboration with KFS officials should hire experts with vast knowledge and skills on value addition so that to train Kimothon CFA members on how to improve quality and diversify forest products. Additionally, the government through the KFS should allocate funds to help CFA members process different forest products and help them to market their products locally and internationally. Instead of using timber for fuel, CFA members should be provided with technical knowledge on how to transform timber into furniture items, charcoal, and other valuable products. This move will increase income for the members and the community, thus enhance community participation on forestry projects.
- ii. There is need to organize educational forums and seminars to enhance community awareness on matters related to forest conservation. The KFS officials at Kimothon station should collaborate with other stakeholders to organize “barazas” as a way to enhance community awareness on matters related to forestry conservation. Furthermore,

the KFS officials can organize sporting activities as a way to encourage the community participates in forestry conservation efforts in the area. The government should intensify media campaigns and publish training materials to create more awareness among the community members. There is also a need to publish training materials using different languages apart from English and Kiswahili. This move will enable those CFA members who do not understand English and Kiswahili language to participate in forestry conservation because they can read and understand the published materials in their vernacular languages.

- iii. Enhance capacity building and training of CFA members on emerging issues related to governance of community-based organizations to enhance transparency, accountability among the members, and reduce conflicts associated with group dynamics. The government through the relevant agencies should formulate policies and programs aimed at equipping CFA members with knowledge and skills required in fostering good governance and leadership. Additionally, there is need to enhance capacity building of the CFA members through training and rendering other vocational courses.

### **5.6 Suggestion for Further Research**

During the survey, the researcher identified areas that prompted for further research. The survey focused on the role of community participation in Kimothon forest, in Trans-Nzoia, but similar study can be done in other forest stations in the country. Furthermore, the study mainly examined the role of community participation on forest conservation and management in Kimothon forest, but further research can be done to examine the impact of community participation on the livelihood of local community in Kimothon forest or in other forest stations.

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## APPENDICES

### APPENDIX I: LETTER TO THE PARTICIPANTS

Isaac WanyonyiWekesa

P O Box 982 - 30200

KITALE.

Dear Participant,

#### **RE: INVITATION TO PARTICIPATE IN A PROJECT RESEARCH**

I am student at the University of Nairobi, Department of Political Science and Public Administration. Currently I am pursuing a Masters degree in Public Administration. In partial fulfillment of the requirements for the MA award, I am doing a research project entitled: “Examining the Role of Community Participation on Forest Management and Conservation in Kimothon forest, Trans-Nzoia County, Kenya.’ Your participation is highly appreciated

Kindly complete the attached questionnaire and do not write your name to maintain high level of confidentiality. Thank you for taking your time to assist me in my educational endeavors.

Yours Faithfully,

Isaac WanyonyiWekesa

[isowekesa@gmail.com](mailto:isowekesa@gmail.com)

## APPENDIX II: RESEARCH QUESTIONNAIRE

### Section A: Demographic Information

Kindly **Tick** or **Write** in the spaces provided as appropriate.

1. Kindly indicate your gender.

Male [ ] Female [ ]

2. Kindly indicate your age bracket

Below 25 years [ ]

26-35 years [ ]

36-45 years [ ]

Above 46 years [ ]

3. How long have you been a member of Kimothon Community Forest Association?

Less than 1 years [ ]

2-3 Years [ ]

4-5 years [ ]

Above 6 years [ ]

4. What is the highest level of education you attained?

- a. Primary
- b. Secondary
- c. Tertiary/ university
- d. Any other (specify) .....

5. What is your religion?

- a. Christian
- b. Muslim
- c. Others (specify) .....

6. What is your position in the CFA?
  - a. Chairperson [ ]
  - b. Secretary [ ]
  - c. Treasurer [ ]
  - d. Member [ ]
  - e. Any other (specify) .....

**Section B: Role of Community Participation on Forest Management and Conservation in Kimothon Forest, Trans Nzoia County**

7. Do you support the idea of embracing community participation in enhancing forest management and conservation efforts in Kimothon forest?  
Yes [ ] No [ ]
  
8. IF **Yes** in 7 above, why do you think community participation is an important concept in forest management and conservation practices in the area?  
.....
  
9. Do you think the community is adequately involved in forest management and conservation efforts in Kimothon forest?  
Yes [ ] No [ ]
  
10. How can you rate the expectation level of CFA members when joining conservation and management practices in Kimothon forest?
  - a. Very High [ ]
  - b. High [ ]
  - c. Average [ ]
  - d. Low [ ]
  - e. Very Low [ ]
  
11. How can you rate the trend of forest resources in Kimothon forest in the last 5 years?  
Increasing [ ] Decreasing [ ] Not changing [ ] Do not know [ ]

12. Has the concept of community participation aided in increasing forest cover and forest resources in Kimothon forest?

Yes [ ] No [ ]

13. If **Yes** in (11) above, how?

.....

14. Tick the appropriate box in the table to show the extent to which the CFA members are involved in the four stages of forest management and conservation in Kimothon forest. Please **TICK** accordingly in the appropriate column Where 1= Not at all 2= little extent 3= some extent 4= large extent 5= very large extent

<b>Stages of forest management and conservation</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Planning					
Implementation					
Evaluation					
Monitoring					

**Section C: Challenges those CFA Members Face In Managing and Conserving the Forest**

15. How can you rate the extent to which the community and CFA members encounter challenges in their efforts to conserve and manage forestry resources in the region?

Very high [ ]

High [ ]

Moderate [ ]

Low [ ]

Very low [ ]

16. What do you think influence the challenges experienced by the CFA members and the community in forestry management and conservation practices?

- a. Ignorance
- b. Corruption

- c. Limited resources
- d. All
- e. Others (Specify).....

17. What mechanism do KFS officials in Kimothon forest employ to mitigate the adverse effects of these challenges?

- a. Direct engagement
- b. Consultation
- c. Dialogue
- d. Others (Specify).....

18. Indicate to which extent you agree with the following statements on challenges affecting effective and efficient conservation and management at Kimothon forest. Please **TICK** accordingly in the appropriate column Where 1= Not at all 2= little extent 3= some extent 4= large extent 5= very large extent

<b>Statements on challenges affecting effective and efficient conservation and management of forestry resources in Kimothon forest</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
Corruption is the leading cause of forest degradation					
Failure to contribute registration fees hinders effective forest conservation practices					
Kenya Forest Service are not helpful					
Lack of equipment slows down the process of conservation and management					
High expectations of members regarding the direct benefits they should thrive from forests.					
Leadership wrangles affect growth of CFA and forest conservation.					



Sometimes KFS staff is unwilling to support the initiatives of CFAs at the start.					
Delays in signing of important documents between the community and KFS					
Lack of capacity among CFA members to run the group for the intended purpose.					
Lack of critical knowledge for participatory management skills.					
Inadequate mechanisms to monitor activities of the CFA					
Low funding for CFA activities					

**Section D: Factors That Influence Community Participation on Forestry Conservation and Management Efforts in Kimothon Forest**

19. Do you think the adjacent community embraces the idea of integrating community participation in forestry management and conservation practices in Kimothon forest?

Yes [ ]                      No [ ]

20. If **Yes** in 19 above, what factors influence their participation?

.....

21. If **No** in 19 above, what factors hinder the community from participating in forestry conservation and management affairs?

22. Are there problems/constraints brought about by involving adjacent communities in forestry management and conservation programs?

Yes [ ]                      No [ ]

23. If **Yes** in 22 above, to what extent do these problems/constraints influence community participation on forestry conservation and management initiatives?

.....

24. In your opinion, which social-economic factors motivate/demotivate the community to participate in forestry management programs in Kimothon forest?

.....

25. Do you think there is variance in benefit sharing between the CFA members and other stakeholders?

Yes [ ]

No [ ]

26. If **Yes** in 25 above, how can the variance be addressed to enhance community participation in forestry conservation and management efforts?

.....

27. In your opinion, do you think the adjacent communities are adequately furnished with information and knowledge regarding their participation to enhance community awareness in forestry management and conservation practices?

Yes [ ]

No [ ]

28. If **No** in 27 above, what measures has the KFS officials in Kimothon forest put in place to promote community awareness?.....

.....

**THANKS FOR YOUR PARTICIPATION**

**APPENDIX III: AN INTERVIEW SCHEDULE FOR KFS OFFICIALS**

**Section A: Overview of Community Participation on Forest Management and Conservation in Kimothon Forest, Trans-Nzoia County**

1. What managerial position/rank do you hold at your work place?  
.....
2. How long have you worked at your work station?
3. Do you support the idea of integrating community participation in forest management and conservation practices?
4. At your work station, which measures have you put in place to enhance community participation in forest management and conservation practices?  
.....
5. In your opinion, what strategies can the government introduce at the local level to create community awareness and enhance efficiency of community participation in forestry management efforts?  
.....
6. Are there managerial challenges/problems/constraints that you experience because of integrating adjacent communities in forest management and conservation programs?  
.....  
.....
7. What lessons and experiences have you learnt as a result of involving adjacent communities in conservation and management of forests in the area?  
.....
8. In your opinion, do you think integrating the concept of community participation through Participatory Forest Management (PFM) approach is an important move in spearheading forest conservation and management efforts at the local level?.....  
.....

**THANKS FOR YOUR PARTICIPATION**

**APPENDIX IV: FOCUS GROUP DISCUSSION (FGD) INTERVIEW GUIDE FOR KEY INFORMANTS**

**Section A: General Situation on the Role of Community Participation on Forest Conservation and Management in Kimothon Forest, Trans-Nzoia County**

1. What is the relationship between the community and the management of the forest?  
(Probe from different groups)  
.....
2. Do you think the adjacent community is adequately involved in forest management and conservation initiatives by the government?  
.....
3. In your view, do you think the integration of adjacent community has enhanced forest management and conservation practices in Kimothon forest?  
.....
4. Is the community accorded equal opportunity as other parties in terms of sharing forest resources?  
.....
5. Which areas do you think the government can improve to promote community participation and improve forest management?  
.....
6. Has the idea of integrating adjacent community in forest management efforts improved the livelihood of the people in the area?(Probe for economic, social and cultural benefits)  
.....
7. What challenges/problems does the community encounter in accessing forest resources?(Probe for different types of resources and the gravity/intensity of the problems encountered)  
.....
8. How can you compare the utilization of forest resources by the community in the past and now?  
.....
9. In your view, how would like forest resources to be utilized in the future?  
.....
10. What measures can the government introduce to promote equitable, sustainable, and effective utilization of forest resources in Kimothon forest?  
.....

**THANKS FOR YOUR PARTICIPATION**