

# KIPTUGET PARTICIPATORY FOREST MANAGEMENT PLAN



2015 - 2019



## APPROVAL PAGE

### **Kiptuget Participatory Forest Management Plan 2015-2019**

This Management Plan is hereby approved; its implementation will be guided by the signed “Forest Management Agreement” between KFS and the Kiptuget Community Forest Association here in referred to as KICOFA and will be based on approved annual work plans.

The plan may be amended as need arises through mutual agreement by both parties.

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**Emilio N. Mugo**

**Director, Kenya Forest Service**

This \_\_\_\_\_ Day of \_\_\_\_\_ 2015

## FORWARD

Over the past four decades, the management of forests in Kenya laid emphasis on protection of forests through the command and control system with minimal participation of other stakeholders. Consequently, forest adjacent communities were estranged from the forest resources and participation in decision-making. The previous legislation and policy had inadequate provisions for community participation in forest management.

The Forests Act 2005 now provides for engagement of local communities in forest management through Participatory Forest Management. Under the new arrangement, local communities are expected to come together, form and register an association, and apply to the Director, Kenya Forest Service (KFS) to be enjoined in management of the respective forest. The Kiptuget Community Forest Association (KICOFA) - was formed on this basis. The Forests Act forms a framework upon which KICOFA will enter into management agreement with KFS to implement this management plan. It is expected that this participatory management plan will result in the sustainable management of Kiptuget forest and contribute to improved local community livelihoods.

To develop the PFMP, KICOFA was facilitated by ERMIS Africa (Environmental Research, Mapping & Information Systems in Africa) with funding from Rufford Small Grant for Conservation. The major aim of the management plan as per the Forests Act 2005 is to enable KICOFA and KFS to co-manage Kiptuget Forest in a sustainable manner.

Sustainable management of any shared natural resource depends on a shared vision and development goals by all relevant stakeholders. The successful attainment of the goals depends on the willingness of the stakeholders to pursue the vision, soundness of the collaboration among the stakeholders and the appropriateness of planning and implementation tools and approaches. This Participatory Forest Management Plan is meant to bring these realizations towards sustainable management of Kiptuget forest.

It is our sincere hope that this management plan will go a long way in assisting KICOFA and KFS to co-manage Kiptuget Forest sustainably and contribute to the overall conservation and protection of the Mau Catchment.

**Faith Milkah Muniale**  
**Project Leader**

## ACKNOWLEDGEMENT

The development of Kiptuget Participatory Forest Management Plan was funded by the Rufford Small Grant for conservation as part of the project implemented to enhance conservation of Mau Forest and Lake Nakuru Catchment. Kiptuget Community Forest Association (KICOFA) would like to express our sincere gratitude for the support without which the development of this PFMP would not have been possible.

We appreciate project implementation team for their dedication, guidance and support towards the development of this PFMP. We applaud them for their role in overseeing the whole process, coordinating and facilitating all the activities.

We would like to thank community members who gave their time to participate in the development of this plan and in particular the Local Planning Team which played a vital role in mobilizing the community to participate as well as in data/information collection. Special thanks goes to community leadership including area chiefs, religious leaders, elders and other opinion leaders for their support and contribution.

We would also like to acknowledge the support of Government institutions/departments and their officers during the PFMP development process; in particular we appreciate the Ecosystem Conservator Mr. Musyoka, the Forest Station Manager Mr. Wainaina and the area Agriculture officer Mr. Yego for their generosity with their time and expertise during the whole process.

Finally we wish to acknowledge the dedication of ERMIS Africa for the technical support without which the development of this PFMP would not have been possible. The team relentlessly dedicated themselves to the rigorous process and are highly commended.

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*(Signed)*

**Mr. Julius K. Sawe**  
**CFA Chairman, KICOFA**

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## EXECUTIVE SUMMARY

Kiptuget forest is under the Mau Conservancy and covers an estimated area of about 850 ha. Administratively the forest falls within Maji Mazuri Location of Koibatek sub-county in Baringo County. While the entire forest area boundaries are within Koibatek Sub-county the adjacent community forest users are in Kuresoi Sub-county of Nakuru County. Being part of the Mau Forest Complex, the forest is an important water tower, a biodiversity reservoir and is crucial in supporting the local community livelihoods and has a cumulative climate moderation of the local ecosystem.

Kiptuget forest is bordered by farmlands as the surrounding communities are largely farmers but also depend on the forest for water, firewood/fuel wood, timber, honey harvesting/beekeeping, medicinal herbs and grazing areas for their livestock. In light of increased population of forest adjacent communities (FACs) and demand for these forest resources it has become necessary to put measures in place to protect the ecological integrity and biodiversity of the forest from the impacts of indiscriminate utilization of forest resources.

This Participatory Forest Management Plan (PFMP) was developed in accordance to Section 35 (1) of the Forests Act (2005) provides that all state forests, local authority forest and provisional forests be managed in accordance with a management plan drawn in compliance with the rules set by the Act. The PFMP development was undertaken for Kiptuget Community Forest Association (KICOFA) in partnership with Kenya Forest Service (KFS).

The local planning team (LPT) in the process consulted with many stakeholders among them; KFS, KICOFA, government line ministries and local leaders including chiefs, councillors and local opinion leaders. The PFMP offers a paradigm shift in the management of forest property where Local communities are configured into CFA and enters into agreement with KFS on sustainable management of the forest for mutual benefit. The agreement is based on consultative identification of the community and verification of resource base, assessment of the forest area and communities, and eventual preparation of the forest management plan.

The development of this PFMP was conceived with the aim of setting up a structure to guide the sustainable management and utilization of Kiptuget Forest resources while at the same ensuring that the FACs benefit from the products and services of the resources. The plan documents all the resources found within the forest, the threats to the forest, challenges in the management of the forest and prescribes a set of programmes to address the forest conservation/protection issues, enhance the benefits for the community and improve the effectiveness and efficiency of the management of the forest.

The proposed projects are grouped into 6 programme areas in line with the forest zonation areas (i.e. Protection zone, conservation zone, productive zone and intervention zone) and thematic programme areas (Infrastructure and human resource development programme and ecotourism and PES programme) aimed at promoting the protection, conservation and sustainable utilization of forest resources within Kiptuget Forest. The plan also documents the relevant stakeholders and their roles and/or responsibility in the management of Kiptuget Forest.

## DEFINITION OF TERMS

### **Community Forest Association**

A group of persons who are registered as an association under the Societies Act (Cap 108) and who are resident in an area close to the specified forest.

### **Forest Community**

A group of persons who (a) have a traditional association with a forest for purposes of livelihood, culture or religion; (b) are registered as a Forest Association or other organization engaged in forest conservation;

### **Forest Level Management Committee**

A committee initiated by the Service consisting of representatives from the Service, Community

Forest Association and other relevant stakeholders to assist the CFA to implement the community forest management agreement

### **Forest Conservation Committee**

A committee established under the Forests Act, 2005 in each conservancy area or part thereof (ecosystem) to advise the Forests Board on all matters relating to the management and conservation of forests in that area.

### **Forest Management Agreement**

An agreement between the Service and a Community Forest Association. Local authority, or any person or organization for the purpose of managing a State or local authority forest

### **Forest Management Plan**

A systematic programme showing all activities to be undertaken in a forest or part thereof during a period of at least five years, and includes conservation, utilization, silvicultural operations and infrastructural developments

### **Forest Stakeholder**

Any person, group of persons, or institution who for cultural, religious, economic, social or investment reasons is involved in, or associated with, management, research and exploitation of the products or services from a forest area.

### **Indigenous Forest**

A forest which has come about by natural regeneration of trees primarily native to Kenya, and includes mangrove and bamboo forests.

### **Participatory Forest Management**

A forest management approach, which deliberately involves the forest adjacent communities and other stakeholders in management of forests within a framework that contributes to community's livelihoods.

**Sustainable use**

Present use of the environment or natural resources which does not compromise the ability to use the same by future generations or degrade the carrying capacity of these ecosystems.

**User group**

Any group of individuals formal or informal who; collects, harvests or utilizes any part or product from a forest for subsistence or commercial purposes.

## ACRONYMS AND ABBREVIATIONS

a.s.l	Above sea level
AIC	African Inland Church
CBD	Convention on Biological Diversity
CFA	Community Forest Association
CIGs	Common Interest Groups
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
DDC	District Development Committee
EMCA	Environmental Management and Coordination Act
ERMIS	Environmental Research, Mapping and Information System In Africa
ERS	Economic Recovery Strategy
FACs	Forest Adjacent Communities
FAN	Forest Action Network
FLIC	Forest Level Implementation Committee
FMA	Forest Management Agreement
GDP	Gross Domestic Product
GFP	Global Forest Principles
HH	Household
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
HR	Human Resource
IGAs	Income Generating Activities
JICA	Japan International Cooperation Agency
KALRO	Kenya Agriculture and Livestock Research Organization
KEFRI	Kenya Forestry Research Institute
KeRRA	Kenya Rural Roads Authority
KFS	Kenya Forest Service
KICOFA	Kiptuget Community Forest Association
KWS	Kenya Wildlife Service

LCICP	Lembus Catchment Integrated Conservation Project
LPT	Local Planning Team
M&E	Monitoring And Evaluation
MDGs	Millennium Development Goals
MEA	Multilateral Environmental Agreements
MEAP	Maendeleo Endelevu Action Program
MoALF	Ministry of Agriculture, Livestock And Fisheries
MoEWNR	Ministry of Environment, Water and Natural Resources
NEAP	National Environment Action Plan
NECOFA	Network of Eco-Farming in Africa
NEMA	National Environment Management Authority
NGO	Non-Governmental Organization
NWFP	Non-Wood Forest Products
PELIS	Plantation Establishment for Livelihood Improvement Scheme
PES	Payment for Ecosystem Services
PES	Payment for Environmental Services
PFM	Participatory Forest Management
PFMP	Participatory Forest Management Plan
PIC	Project Implementation Committee
ToTs	Trainer of Trainers
UNFCC	United Nations Framework for Climate Change
WRMA	Water Resource Management Authority

# **CHAPTER 1**

## **1 BACKGROUND INFORMATION**

### **1.1 DESCRIPTION OF THE PLAN**

#### **1.1.1 Name of the Management Plan**

The name of the management plan will be **“Kiptuget Participatory Forest Management Plan”**.

#### **1.1.2 Period/Term of the Management Plan**

Upon approval and signing of a Forest management agreement (FMA), Kiptuget PFMP shall be implemented for 5 years period **(2015-2019)**. The plan can subsequently be renewed for similar periods in future.

#### **1.1.3 Legal Authority for Preparation of the Plan**

The Forests Act (2005) section 35 (1) provides that all state forests, local authority forest and provisional forests be managed in accordance with a management plan drawn in compliance with the rules set by the Act. Although paragraphs (2) and (3) of the section places the responsibility of the management plan on KFS (for state forest) and the local authority (for local authority forests), paragraph (4) provides for the adoption of a plan prepared by another person or body. In addition paragraph (5) requires that the Service or the local authority consult with the local forest conservation committee during the preparation of the management plan.

Section 46 of the Act provides for the formation and registration of community forest association (CFA) for the purposes of applying for participating in the conservation and management of forests. It also provides for the CFAs to prepare a management plan where none exists while section 47 provides for the associations to enter an agreement with the Director of the service which would confer forest user rights on the association.

#### **1.1.4 Amendments and revision of the management plan**

This management plan is to be implemented for a five year period during which the CFA in consultation with KFS and other stakeholders may amend the plan when need arises.

Over the implementation period, the stakeholders will monitor and evaluate the implementation and outcome of programmes/projects proposed in this plan to inform the revision or renewal of the plan at the end of the 5 year period.

#### **1.1.5 Approach to development of Kiptuget PFMP**

The development of Kiptuget Forest PFMP was undertaken through participatory approaches and methodologies where all stakeholders were involved. It was prepared through an open and transparent process involving representatives of all the main stakeholder groups. During the preparation process there was a wide-range of discussions covering all major areas of interest. The final strategies and actions incorporated into the plan were reached through a

process of consensus.

Initial community sensitization that led to the formation of community forest associations were initiated by KFS after the enactment of Forests Act, 2005 (Rev. 2007, 2014 (ongoing)). As a result, the KICOFA was formed as recommended in the PFM guidelines of 2007, (KFS, 2007)<sup>1</sup>. KICOFA brings together various CBO's, User Groups and individual community members from all the villages adjacent to Kiptuget forest. Groups and individuals already registered with the CFA and those yet to join were mobilized to participate in the PFMP development.

The planning process commenced with the formation of a Local Planning Team during a launch workshop held at Sinendet A.I.C church. The LPT comprised of 10 members (see appendix I). The LPT underwent training on data collection for the PFMP process, and their mandate including resource mapping. This was to enable them to guide the community in assessment of the different forest resources and socio-economic survey.

## **1.2 DESCRIPTION OF THE FOREST**

### **1.2.1 Location**

Kiptuget forest is a block of the Mau Forest complex located in Maji Mazuri Location of Koibatek sub-county in Baringo County and lies between latitude 0°4'S and 0°9'S and longitudes 35°41'E and 35°45'E. In terms of forest management the forest is located within the Mau Conservancy.

The forest is located within 5km off the Nakuru – Eldoret highway with the closest urban centres being Kamara and Total shopping Centre. It can be accessed through a turn off to the east of the highway at Kamara shopping centres.

It is important to note that while the entire forest area boundaries are within Koibatek Sub-county the adjacent community forest users are in Kuresoi Sub-county of Nakuru County (See figure 1-1).

### **1.2.2 Description of the forest boundaries**

Kiptuget forest boundaries are entirely within the Maji Mazuri location of Koibatek sub-county, Baringo County. The forest neighbours Maji Mazuri Forest to the north, Sabatia forest to the North east, Esageri to the East, Koibatek forest to the South East and farmlands and settlement areas of Mau Summit and Kamara locations to the west (see figure 1-1).

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<sup>1</sup>The participatory Forest Management Guidelines, December 2007, are not a set of Kenya forest service (KFS) regulations

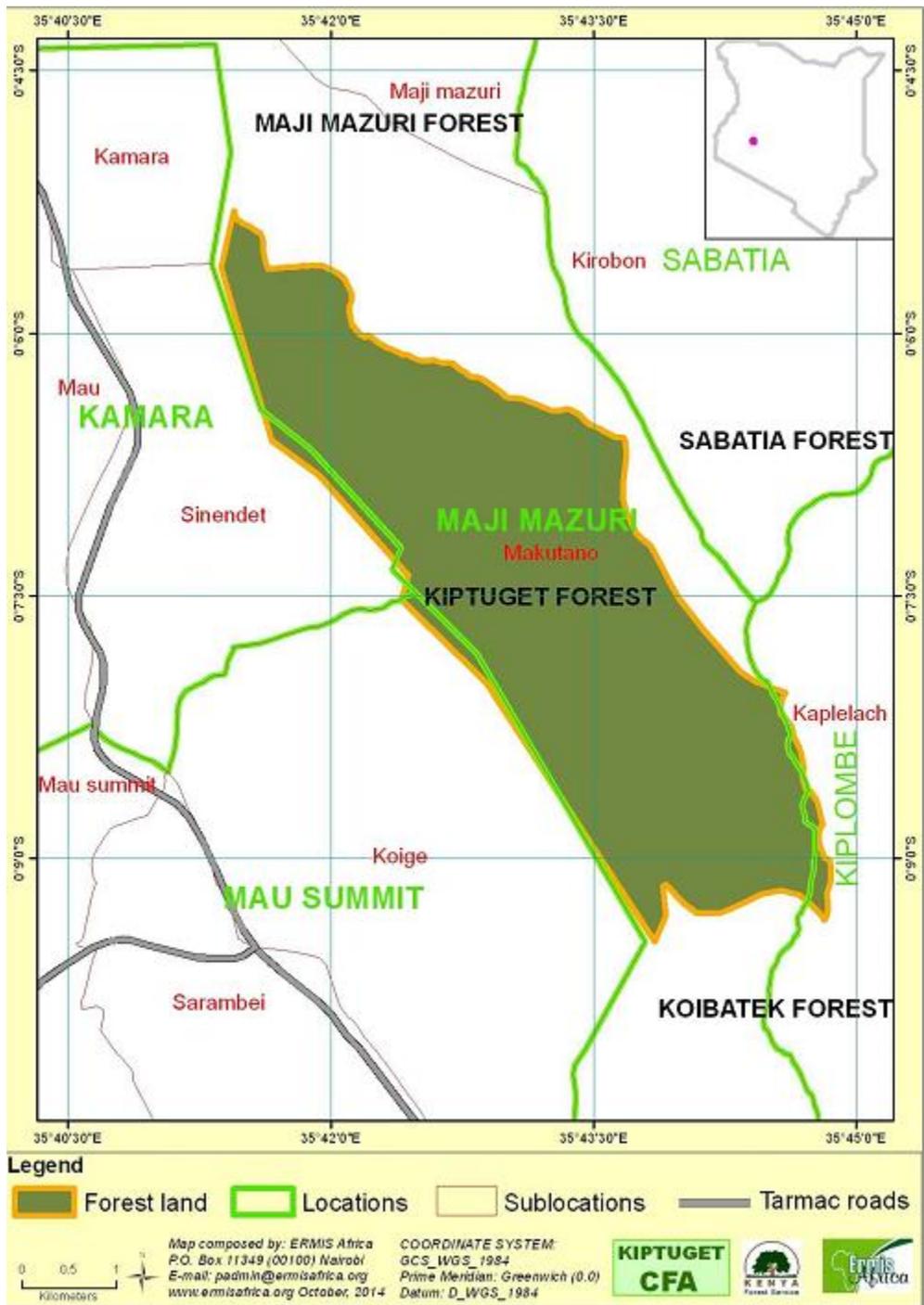


Figure 1-1 Map showing the location of Kiptuget Forest

### 1.2.3 Legal and Administrative status

As part of Mau complex, it was declared a forest area under proclamation no.44 of 1932 with an initial area covering a total of 850 ha. It was later gazetted as a state forest under legal notice no. 174 of 20<sup>th</sup> May 1964. The forest is one of the 22 forest blocks forming Mau Complex and is yet to be surveyed and title deed to be issued.

KFS administers the Kiptuget Forest which falls under Koibatek sub-county in Baringo County. The Ecosystem Conservator (EC) who is the head of forestry in the County is based at Eldama Ravine Town. The forest is within Mau Conservancy and is directly administered by a Forest Station Manager who is based within the forest station.

**Table 1-1 Kiptuget Forest areas**

Name of the forest block	Initial gazettement area (ha)	Area of formal excisions (ha)	Additions (ha)	Area of informal excisions (ha)	Total current area (ha)
Kiptuget	850	-	-	-	850

*NB. There has not been any formal or informal excisions from the original gazetted area of Kiptuget forest nor additions.*

### 1.2.4 History of the forest

Kiptuget Forest is located in eastern side of Koibatek sub-county within Baringo County and it is one of the 8 forest stations that form the greater Lembus ecosystem. It borders Koibatek forest to the east and Maji mazuri forest to the west. It has some hills that were used for hunting and cultural rites by the “Dorobo” or Ogiek who were original inhabitant of the place. Its panoramic view overlooking chemorgok hills as well as Mt. Londiani forest leaves Kiptuget to be a potential place where eco-tourism potential can be explored.

“Kiptuget” literally means a place where “Doves” are found in plenty. The forest was owned by Kapmotingo clan, from Koibatek section of the Dorobo before it was declared a forest in early years of 19th Century thorough forest ordinance. The Dorobo were to be transferred to Chepalungu alongside other sections of the Dorobo in the whole of Mau, but the plan did not succeed. In 1928, the then Dorobo chief, Chepkurgat Motingo confronted the colonial administration and requested to be allowed to live in Kiptuget. The colonial administration offered to settle them in a place where Capt. Ewart Scott Grogan (Now Narasha forest) was given a 50 year concession after its expiry in 1957.

This promise was reversed after the native land reports were released by Kenya Land Commission or Carter Commission in 1933

## 1.2.5 Physical description of the forest

### 1.2.5.1 Climate

The climate around Kiptuget forest is influenced by winds and humidity that prevail within Indian Ocean coastal line and the Congo rain forest. The breezes that determine the temperatures are initialized from the oceanic zone and rain forest zones. The rainfall pattern in Kiptuget is bimodal with long rains coming between March and July and the short rains occurring between September and November. The maximum rainfall is recorded in the month of April at about and minimum rain occurring in February. The average total rainfall per annum ranges between 800mm in the lowlands to 1200mm in the highlands (Onyando *et al.* 2005).

Temperature varies from 15°C to 35°C and follows the rainfall pattern. The temperature is relatively cool from June to October and hot from December to March. (JICA/MOARD, 1999).

### 1.2.5.2 Topography

The forest and the adjacent areas topography is characterized by rolling hills and valleys/depressions with Mt. Londiani forming the highest level at 3008m a.s.l. The valleys are water ways for permanent and seasonal rivers while most depressions are wetlands (swamps).



**Plate 1-1 Views of the forest and surrounding areas from one of the towers at highest point of the forest**

#### **1.2.5.3 Geology and soils**

Kiptuget Forest falls under a region characterized by four dominant geological formations, which include; Precambrian Basement system rocks referred to as the Mozambique Belt, Tertiary Volcanic rocks, Quaternary volcanic rocks, Quaternary to Recent sediments.

The Mozambique Belt rocks underlie the entire region except for some few places which are completely covered by volcanic formations. Tertiary (to Quaternary) volcanic formations occur over a vast portion of the region. They stretch from the highlands around Nakuru roughly in a South West – North East direction including Kiptuget to the southern shores of Lake Turkana. The geology of the rest of the region is characterized by the deposits of sediments originating from Quaternary to Recent period.

Kiptuget falls within the Great Rift Valley and as such is characterized by rich volcanic soils. This is mainly due to young volcanic deposits that are rich in nutrients forming dark brown loams.

#### **1.2.5.4 Hydrology**

The forest is an important water catchment area with several permanent rivers namely, Kiptegat, Tegat and seasonal streams such as Maasai lem among others which supply water to the nearest communities for both household use and for livestock. The rivers and streams in Kiptuget forest flows from the higher elevation areas outwards and towards the surrounding lower elevation areas forming a radial pattern around the forest. The drainage system of the forest and the water resources including dam, and swamps within the forest are as shown in figure 1-1 below.

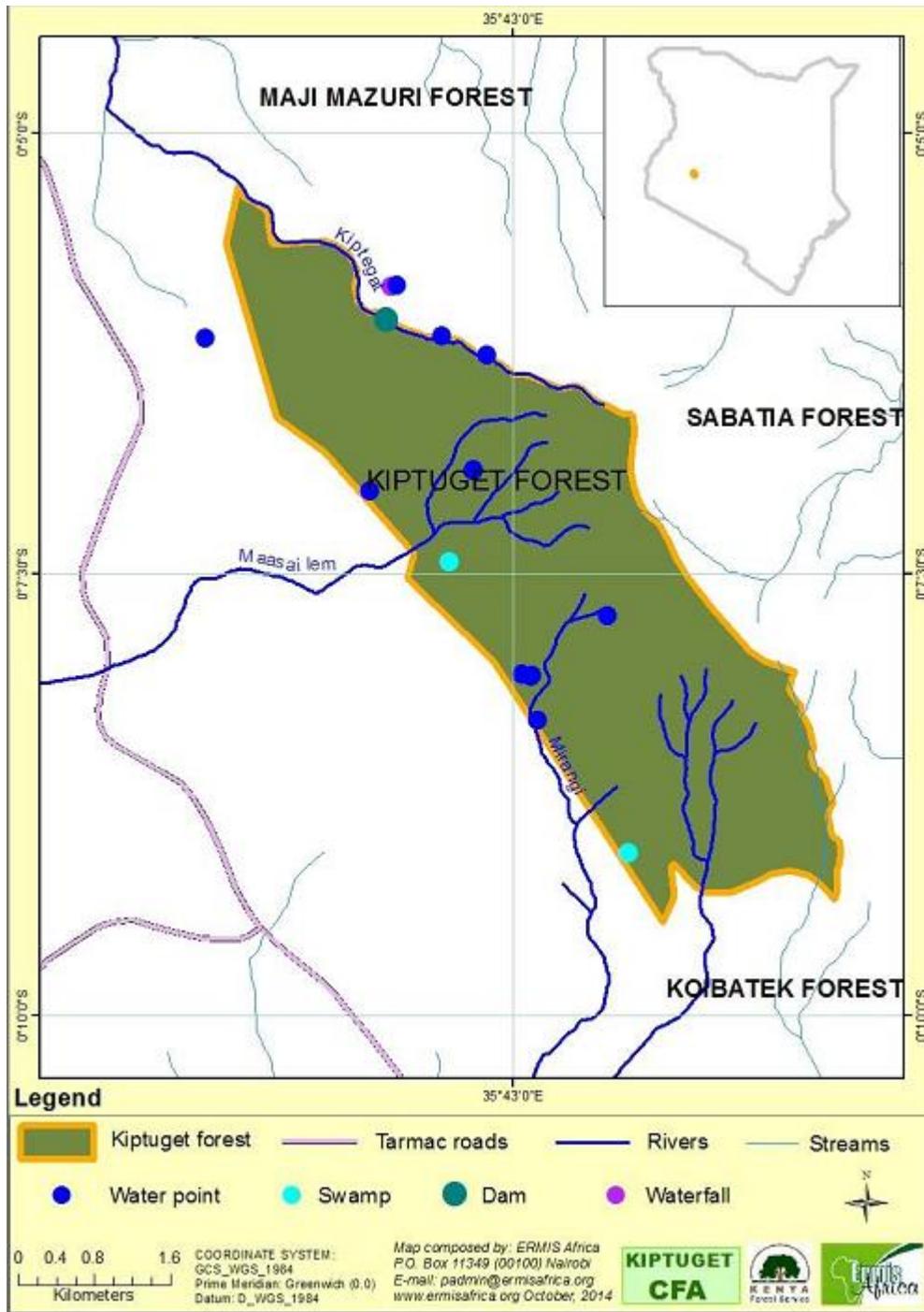


Figure 1-2 Map showing the drainage system of Kiptuget forest

### 1.2.6 Description of flora

Kiptuget forest is a montane forest and as such the vegetation type is influenced by altitude. The lower part of the forest is dominated by plantation forest mainly of cypress and pine trees while the higher part of the forest is indigenous forest. The indigenous forest is comprised of woody sections that are dominated by *Podocarpus falcatus*, *Juniperus procera*, *Olea africana*, *Paveta gardeniifolia*, *Dombeya kirkii*, and *Dombeya burgessiae* and bamboo (*Arudinaria alpina*).

The general vegetation distribution within the forest as shown in the table below.

**Table 1-2 Vegetation distribution within Kiptuget Forest**

Block	Bamboo and indigenous	Bushland	Grassland/ glades	Forest plantation	Total
Kiptuget	450	51	30	319	850

Kiptuget forest serves as a reservoir for a diverse range of tree and plant species. Besides their conservation and environmental services the trees/plants are used by the community surrounding the forest for different needs e.g. herbal medicine, firewood, building materials and traditional/cultural practices.

The community identified a total of 48 tree/plant species that are used for medicinal purposes including *Olea europaea*, *Pavetta gardeniifolia*, *Warbugia ugandensis*, *Dombeya burgessiae*, *Vernonia auriflora*, *Erythrina abyssinica*, *Rhamnus prinoides* and *Dombeya kirkii* among others. They also identified indigenous tree species that are used for purposes other than herbal medicine including; *Acacia lahai*, *Juniperus procera*, *Carissa spinarum*, *Prunus Africana*, *dovyalis abyssinica*, *Olea capensis*, *syzygium guineense* and *vepris nobilis*. The most common exotic tree species identified included *Acacia mearnsii*, *Cupressus lusitanica*, *Grevillea robusta*, *pinus radiata*, *Pinus patula* and *eucalyptus grandii* among others.

See Appendix V for a full list of all tree/plant species documented.

### 1.2.7 Description of the fauna

Kiptuget forest is endowed with a variety of animals including large and small mammals, primates, birds, reptiles, rodents among others.

The most commonly sighted mammals included; *orycteropus afer* (ant bear), *galago crassicaudatus* (bush baby), *Dendrohyrax arboreus* (tree hyrax), *Syncarus caffer* (buffalo), *Madoqua kirkii* (dik dik), *Phacochoerus africanus* (warthog), *Antelope cervicapra* (antelope), *Lycaon pictus* (African wild dog) and *Hylochoerus meinertzhagen* (giant forest hog) among others.

Kiptuget forest is host to a number of primate species including; vervet monkey (*chlorocebus pygerythrus*), baboon (*papio Anubis*), brown monkey (*ateles hybridus*), Columbus monkey

(*colobus guereza*) and De Brazza monkey (*Cercopithecus neglectus*). The bird families/genera in Kiptuget forest identified include weavers (*ploceidae*), wood peckers (*picumninae*), hawks (*Accipitrinae*), cranes (*balearica spp*) and pelicans (*pelecanus spp*) among others.

Kiptuget forest is also home for an assorted range of reptiles. The most commonly sighted include; *Dendroaspis angusticeps* (green mamba) *Zootoca vivipara* (common lizards) *Hemidactylus spp* (geckos) *Dendroaspis polylepis* (black mamba)

See appendix VI for a full list of all animal species documented.

### 1.2.8 Description of eco-tourism sites

The forest has some potential for eco-tourism which is yet to be exploited including nature trails, water fall, scenic site, and pre-historic caves. The highest point in the forest provides a great view over the surrounding areas and on a clear day one could see Lake Victoria. However none of these sites have been promoted other than for use by the local community.

## 1.3 DESCRIPTION OF FOREST RESOURCES

### 1.3.1 Stocking of the forest

The stocking for Kiptuget forest is as follows;

Compartment	Species	Planting year	Density	M.dbh	M.ht	Area	Age	Remarks
Kiptuget 1C	-	-	-	-	-	20.6		Clear felled
Kiptuget 2B	-	-	-	-	-	8.1		C/felled2012
Kiptuget 2D	-	-	-	-	-	12.6		
Kiptuget 2F	-	-	-	-	-	17.5		C/felled2012
Kiptuget 6A	-	-	-	-	-	22.4		C/felled2011
Kiptuget 6B	-	-	-	-	-	19.6		C/felled2011
Kiptuget 6C	-	-	-	-	-	3		C/felled2012
Kiptuget 1J	CEDAR	1995	175	236.42	6.7	2	19	
Kiptuget 1A	CUP.LUS	2009	1400	10	7	20.6	5	Require 1st pruning
Kiptuget 1B	CUP.LUS	1996	75	215.3	11.3	7.3	18	
Kiptuget 1E	CUP.LUS	1983	350	395.7	24.1	31.2	31	
Kiptuget 1F	CUP.LUS	2010	1200	8.5	10.1	6.8	4	
Kiptuget 1G	CUP.LUS	2004	800	9.2	12	15.7	10	
Kiptuget 2C	CUP.LUS	2009	650	12.5	15.1	17.6	5	UNSTOCKED
Kiptuget 2E	CUP.LUS	1982	375	357.4	23.9	13.8	32	
Kiptuget 2J	CUP.LUS	1983	500	369.5	24.1	18.2	31	
Kiptuget 3A	CUP.LUS	1985	375	326.08	19.6	9.9	29	
Kiptuget 5A	CUP.LUS	1985	500	317.52	21.6	8	29	
Kiptuget 2I	E.SAL	2010	750	7	10	18.5	4	Coppice reduced 2010
Kiptuget 1PL	MIXED SPPS	2008	-	-	-	3.9	6	Varied indigenous spp planted
Kiptuget 2K	MIXED	-	-	-	-	1.5		Regeneration of

	SPPS							indigenous spp
Kiptuget 1A	P.PAT	2009	900	10.5	8	21	5	Require 1st pruning
Kiptuget 1D	P.PAT	2009	900	11.8	14	17.9	5	
Kiptuget 2A	P.PAT	2010	850	12.2	14	15.3		Est. under grassland, low density
Kiptuget 2G	P.PAT	2010	800	8	10	19.3	4	
Kiptuget 2H	P.PAT	2011	500	6	8	16.9	3	Low stocking
Kiptuget 3B	P.PAT	1985	300	374.66	30	5.5	29	
						374.7		

### 1.3.2 Non-wood forest products

#### 1.3.2.1 Livelihood

Kiptuget forest supports several forest adjacent communities who rely on forest products and services for their livelihood including water, farming areas (PELIS), grazing resources, bee keeping, and medicinal herbs.

The forest forms an important support for the local livelihood with majority of the adjacent community members relying on the PELIS plots allocated to them to produce crops such as potatoes, peas and maize for sale locally and in major towns such as Nakuru. This is especially important since land fragmentation in the area has led to people owning land that is too small to do farming for commercial purposes.



**Plate 1-2 Traditional bee hives and the new apiary with Langstroth/KTBH hives in Kiptuget forest**



**Plate 1-3 Farming in the PELIS areas of Kiptuget Forest**

**1.3.2.2 Water Resources and Catchment Management**

The forest is an important water catchment area several permanent rivers namely, Kiptegat, Tegat and seasonal streams such as Maasai lem among others which supply water to the nearest communities for both household use and for livestock. Further, the rivers are of high livelihood importance where small scale subsistence oriented economic activities depend on their water discharge.

There is a water project (Tegaat water project) to supplement the water sourced from the rivers and natural streams in the surrounding areas due to reduction of water in the rivers and declining water table. The water is extracted from the Tegaat River within the bamboo zone of the Kiptuget forest. At present the necessary infrastructure has been laid out and water distribution has begun. The project is expected to expand and the water distribution network extended to other areas further than the level 1 villages. In addition there is a proposed water project (Kiptuget/Kamara water project) on Kiptegat River, the proposed design has been completed but the project is yet to take off.



**Plate 1-4 Water abstraction site for Kiptuget water project and one of the unprotected springs used by the community**

#### **1.3.2.3 Biodiversityreservoir**

Kiptuget forest has a rich biodiversity of flora and fauna. The forest is a block of one of Kenya’s remaining montane forests that hold great diversity of plant and animal species. The forest boasts a big range of higher and lower animal and plant life of varying conservation value and uses. Some of the main tree species include *Podocarpus falcatus*, *Juniperus procera*, *Olea africana*, *Paveta gardeniifolia*, *Dombeya kirkii*, and *Dombeya burgessiae* and large areas of bamboo (*Arundinalia alpina*) at higher elevations. Wildlife includes Velvet Monkeys, Baboons, Leopard, Dik, Buffalo, Bush buck, Giant Forest Hogs, Warthogs and variety of Snakes. This diversity of flora and fauna makes Kiptuget forests a rich biodiversity area.

#### **1.3.2.4 Eco-Tourism**

The forest has some potential of eco-tourism which is yet to be exploited including nature trails, water fall, scenic site, and pre-historic caves. The highest point in the forest provides a great view over the surrounding areas and on a clear day one could see Lake Victoria. The area falls within Lake Baringo and Lake Bogoria Tourist Circuit which could link it to Lake Nakuru National Park.



**Plate 1-5 The water fall and one of the caves in Kiptuget forest**

#### **1.3.2.5 CulturalSignificance**

The forest forms part of the important cultural heritage sites for communities who have resided there since colonial times e.g. the Ogiek. The forest has designated sites and tree species, which were used for conducting cultural rituals such as circumcision ceremonies. In addition the forest has wildlife and birds of cultural significance.

#### **1.3.3 Forest infrastructure and equipment**

In order to achieve the forest management objectives for Kiptuget Forest, a certain level of infrastructure and facilities, working equipment and availability of sufficient and well-motivated staff is key.

Figure 1-2 shows the road network and other infrastructure within and around Kiptuget forest while table 1-14 shows the status of buildings and facilities in Kiptuget forest. None of the

roads within the forest are all weather, they are in bad condition and especially bad during and right after the rainy season when they are impassable. The forest station lack the necessary equipment to regularly maintain the roads or the resources to upgrade to marram roads.

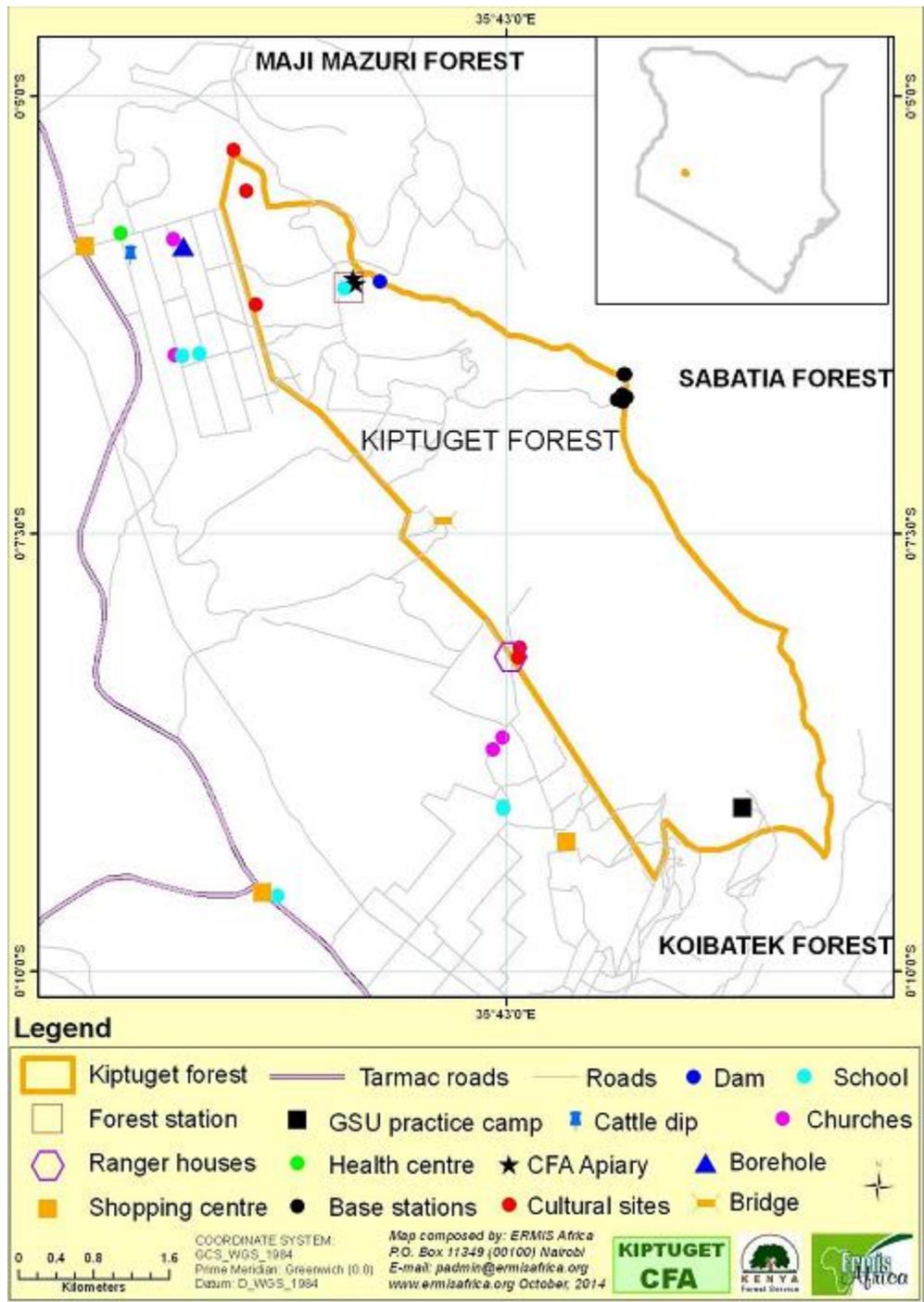


Figure 1-3 Map showing the road network and other infrastructural facilities within and around Kiptuget forest

**Table 1-3 status of buildings and facilities in Kiptuget forest**

Buildings	Status rating	Recommendations
Main office buildings	3	Should be upgraded and connected to power supply
Garage	2	Requires installation
Store	3	Needs upgrade
Foresters house	1	Need to be rebuilt
Rangers housing units/camps	2	Require rehabilitation
Water tank/reservoir	1	Require new installation
Water pipes	1	Replacement
Water pumps	1	New installation needed
Office furniture	2	Replacement/upgrade
Office cookery	1	Require new installation
Toilets	1	New installation
Gate/ entrance to main office	1	New installation

NB. 1=Dilapidated, 2=Bad condition, 3=fair, 4=good, 5=excellent

Communications equipment is required for improving the effectiveness of forest management operations. This requires vehicles, radios and telephones. For administrative functions, the provision of adequate office space, equipment and computers is required. The table below shows the status of machinery and equipment at Kiptuget Forest station.

**Table 1-4 Status of machinery/equipment in Kiptuget forest station**

Machine/equipment	Current No.	Required No.	Deficit	Status of available No.	Uses
Siren	1	1	-	Good	Fire fighting
Tractor	-	1	1		Transport into deeper areas of the forest
Vehicle (pick up)	-	1	1		Transport
Computer	-	1	1		Office work and communication
Firefighting equipment	-	1 set	1 set		Firefighting
Road grader	-	1	1		Road maintenance

It is important to notice that the forest station lacks basic equipment and machinery needed to effectively carry out their duties in the conservation of Kiptuget forest.

#### 1.3.4 Human resources

Kiptuget forest station has a total workforce of about 12 staff headed by the Forest Station Manager. The workforce is below the minimum accepted standard. Below is a list of total workforce as of November 2014 showing the required number for each category and the corresponding deficits and training needs.

**Table 1-5 Current status of human resource at Kiptuget forest station**

Position/cadre	Current No.	Required No.	Deficit	Training needs
Forest manager	1	1	-	Forest management
Assistant Forest Manager	-	1	1	Forest management
Forest Ranger Corporal	1	1	-	Forest management and forest protection
Forest Rangers	7	11	4	Forest protection
Clerk	-	1	1	Clerical work
Store keeper	-	1	1	Store keeping
Support staff	2	5	3	Nursery or plantation management
Forest scouts	-	6	6	Forest surveillance/ patrolling and fire fighting
Drivers	-	3	3	
Drivers mates	-	3	3	
<b>Total</b>	<b>12</b>	<b>34</b>	<b>22</b>	

## 1.4 THREATS AND CONSTRAINTS

### 1.4.1 Threats

During the local meetings the following were perceived as some of the threats facing the Kiptuget forest:

#### 1.4.1.1 Deforestation

It was established that the local community exploit the forest for timber, firewood and poles for building. Incidences of illegal logging and charcoal burning are also experienced in the forest by unknown poachers.

#### 1.4.1.2 Forest fires

Forest fires are lit by grazers, hunters and arsonists in the natural forest and in some cases, they are caused by charcoal burning which is an illegal practice. The fires are also caused by smokers who carelessly leave burning cigarettes butts while traversing in the forest for unknown reasons. In other cases the fires are as a result of accidents such as during honey harvesting. Such incidences have reduced large parts of the forest in the recent past with the biggest challenge to counter forest fire being inadequate emergency response.

#### **1.4.1.3 Increased dependency on forest resource**

The local population growth rate is steadily increasing. This has brought a considerable strain on the forests resources for different needs such as housing, construction, energy, animal rearing and farming land. This population related factors have led to increased pressure on the forest by expanding population and human activities that in turn has led to more competition for resources.

The local people living around the forest depend heavily on the forest as their source of livelihood among other uses. This has led to overexploitation of the forest resources such as timber and mostly poles which are used for building. Firewood is used for cooking also extracted from the forest without proper control. Herbs which are used as medicine are also over extracted from the forest without proper control. Fruits are over extracted from the forest for food. Quarrying was once carried out in the forest uncontrolled thus leading to the damaging of vegetation at the site of mining.

#### **1.4.1.4 Overgrazing**

This has been witnessed in the open grasslands in the forest where large herds of cattle are taken frequently for grazing. The number of animals grazing in these areas has exceeded the available grazing areas. Overgrazing in such grasslands has led to increased soil erosion due to limited ground cover.

#### **1.4.1.5 Human wildlife conflict**

The lack of proper fencing of the forest has led to free movement of wild animals from the forest into adjacent farmland and homestead resulting frequent conflicts. This is has led to crop destruction by baboons and monkeys and snake bites on humans within the intervention zone of the forest. Such wild animals include leopards, hyenas among others attack livestock frequently during the day and night. Such human-wildlife conflict has led loss of livestock and could lead to human death. The conflicts are also witnessed due to encroachment into wildlife habitat in the forest by the people.

#### **1.4.1.6 High poverty levels**

The living standards of people around Kiptuget forest are characterized by high poverty levels which are caused by inadequate land and random disruption of settlements since the area is prone to inter-tribal clashes especially during election years. This situation has forced many of them to depend entirely on the forest as their source of livelihood and income to sustain their needs. This overdependence on the little forest resource has led to strain on the carrying capacity of the forest thus steady decline of forest resources.

#### **1.4.1.7 Infrastructure and management constraints**

There is inadequate security personnel in Kiptuget forest station and there are no established community patrol units. Frequent patrols by the forest rangers in the forest have not succeeded in fully controlling illegal activities in the forest.

The road network in the forest is poorly developed and maintained. In some places only foot paths exist in the forest which makes movement in the forest difficult during emergency situations. Inadequate fence to protect the people against wildlife invasion is also a major problem at the Kiptuget. Absence of firefighting equipment at the forest station makes it impossible to respond adequately during incidences of fire in the forest. There are no tractors such as graders to help in road maintenance in the forest.

#### **1.4.1.8 Soil Erosion**

Poor agricultural activities concentrated in some areas of the forest have exposed the soil bare thus susceptible to erosion by rain water e.g. cultivating in areas with high slope gradient. This is also accelerated by undulating topography which characterizes the region. The destruction of forest fragile ecosystems is also a factor leading to soil erosion.

### **1.4.2 Suggested remedies by the local people**

#### **1.4.2.1 Alternative sources of income**

The local people living next to the forest believe that if the government initiates other projects in the area will divert their dependence on the forest by providing other sources of income. Such projects should be done on large scale to benefit the local people who are depending entirely on the forest for their source of livelihood.

The local people believe that their overdependence on the forest resources can be reduced to some level through empowerment. If given loans and other financial assistance to set up businesses and other income generating activities can become a source of their livelihood thus little dependence on the forest.

The empowering should also be done to the entire community to positively contribute to environmental and natural resource conservation and management. The communities living next to the forest should be fully educated on environmental education and awareness to enable them to effectively manage and conserve the forest on their own. This will reduce costs incurred by the government and other institutions paving for other conservation related projects in the area.

#### **1.4.2.2 Employment opportunities**

The local people are mostly unemployed and with little or no education. They therefore believe that the employment opportunities such as community scouts and casual labour should be given to the local people as a first priority for employment. This can help in improving their living standards thus reducing overdependence on the forest.

#### **1.4.2.3 Legislation**

Existing rules & regulations should be enforced by the government through sensitization and awareness so that the local communities next to the forest and other stakeholders clearly understand how the forest resources should be used, conserved and effectively managed by the concerned parties. The legislation will ensure sustainable development of the forest and

also help in curbing other illegal activities currently going on in the forest.

#### **1.4.2.4 Increased forest cover**

In order to increase the size of forest under vegetation, the local people suggested that there is need to establish tree nurseries to raise tree seedling to plant in the clear felled areas inside the forest and in farmlands. This will help in improving the forest cover and thus reducing soil erosion.

#### **1.4.2.5 Public awareness on importance of forests**

The government together with other institutions should educate the public on the importance and need to protect and conserve forest resources. The public awareness campaigns should be carried out in all places neighbouring the Kiptuget forest frequently so that the local people can realize the benefits that come with proper management and conservation of forest hence applying it locally on the forest.

### **1.4.3 Management constraints**

#### **1.4.3.1 Inadequate staff**

The forest station is suffering a severe staff shortage with a deficit of 25 to reach the optimal number of staff needed to efficiently and effectively carryout the assigned duties in the management and protection of Kiptuget Forest.

#### **1.4.3.2 Poor infrastructure**

The road network in the forest is poorly developed and maintained. In some places only foot paths exist in the forest hence makes movement in the forest difficult during emergency situations. Inadequate fence to protect the people against wildlife invasion is also a major problem at the Kiptuget.

#### **1.4.3.3 Lack of proper equipment**

The forest station lacks even the basic equipment needed for effective management including an office computer, transport vehicles, firefighting equipment and communication equipment. Absence of firefighting equipment at the forest station makes it impossible to respond adequately during incidences of fire in the forest. There are no tractors such as graders to help in road maintenance in the forest.

#### **1.4.3.4 Poor office facilities**

In regards to buildings and facilities, majority of them are either in disrepair or completely dilapidated and unusable. This includes the housing units/camps for the rangers and the forester. The water supply for the facilities is also in disrepair.

## CHAPTER 2

### 2 SOCIO-ECONOMIC DESCRIPTION

#### 2.1 OBJECTIVE AND METHODOLOGY

Conducting a socio-economic survey is a crucial part of the PFMP process. The survey is aimed at establishing the current status of the target community and builds a socio-economic profile that;

- Informs the formulation of forest management objectives
- Informs the type, nature and magnitude of management programmes especially those aimed at community development
- Help in determining the communities capacities in respect to their actual or expected contribution towards forest management and as such highlight capacity building needs
- Serves as a baseline against which the outcome/impact of the PFMP implementation may be measured.

The socio-economic survey for the Kiptuget Forest PFMP process was undertaken by the LPT consisting of 10 members who underwent training for the data collection prior to the commencement of the exercise.

The data collection process involved conducting village meetings, observations and administering questionnaires at household level to collect information on the socioeconomic status of the community. In addition, consultative discussions were held during the village meetings mainly to inform on threats to the forest and other issues affecting the forest and collect the community members' views on how these issues/threats could be resolved. During the meetings the community also did Sketch Mapping to identify and locate various resources within the villages and the forest. A total of 4 meetings were held at Sigowet, Sinendet, Mlima and Koige which represented the central location for the clusters of villages as follows;

**Table 2-1 Village meetings clusters**

Group of villages	Date	venue
Bureti, Bureti ne tebes, Sigowet	17 <sup>th</sup> Nov 2014	Sigowet Nursery school
Mti moja, Tuiyotich, Chepsir, Silibwet, Chesubeno, Big 15, Maraba	19th Nov, 2014	AIC church Sinendet
Miring-ini, London, Thayu, Muthingi	24th Nov, 2014	St. Paul catholic church , Mulima
Kapcheptoror, Koige, Kiwaja, mosop	26th Nov, 2014	Koige

The data collected during the survey was analysed appropriately and is presented in this report.

## 2.2 DESCRIPTION OF ADJACENT COMMUNITIES

### 2.2.1 Community characteristics

The largest ethnic groups found in the area are the Kalenjin and Kikuyu who are spread in varying proportions across the villages. The majority of the communities around Kiptuget forest are crop farmers and also rear livestock albeit in small scale due to high land fragmentation which wouldn't allow for large herds and as such the community rely on the forest for grazing areas of the animals reared or practice zero grazing.

The configuration of the forest adjacent community with respect to their proximity can be expressed as follows:-

1. Level 1 Villages – These are villages directly bordering the forest.
2. Level 2 Villages – These are villages that are separated by another village from the forest or villages bordering level 1 village.
3. Level 3 Village – These are villages that are neither in level 1 or level 2 above, but rely directly or indirectly on the forest.

The Kiptuget forest is surrounded by a total of 18 villages as follows:-

**Table 2-2 List of villages in surrounding Kiptuget Forest**

Area/sub-location	Villages		
	Level 1	Level 2	Level 3
Tabora	Bureti	Bureti ne tebes	
Sinendet	Sigowet Miti moja	Tuiyotich Silibwet	Chepsir Chesubeno
Big 15	Big 15	Maraba	
Mlima	Mirangi-ini London	Thayu Muthingi	
Sinendet A/Koige		Kapcheptoror Koige	Kiwaja mosop

### 2.2.2 Participation in the socio-economic survey

The participants in the socioeconomic survey were drawn from all the villages adjacent to Kiptuget Forest. However, participation varied from one area to another mainly depending on the area population.

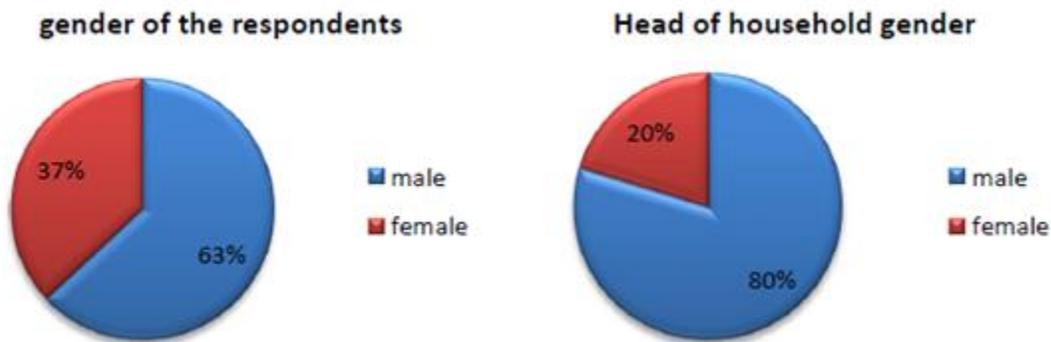
**Table 2-3 Number of households surveyed per village area**

Village area	Total number of villages	Number of Households surveyed
Tabora	2	19
Sinendet	6	121
Big 15	2	5
Mlima	4	110

Koige	4	21
Total	18	276

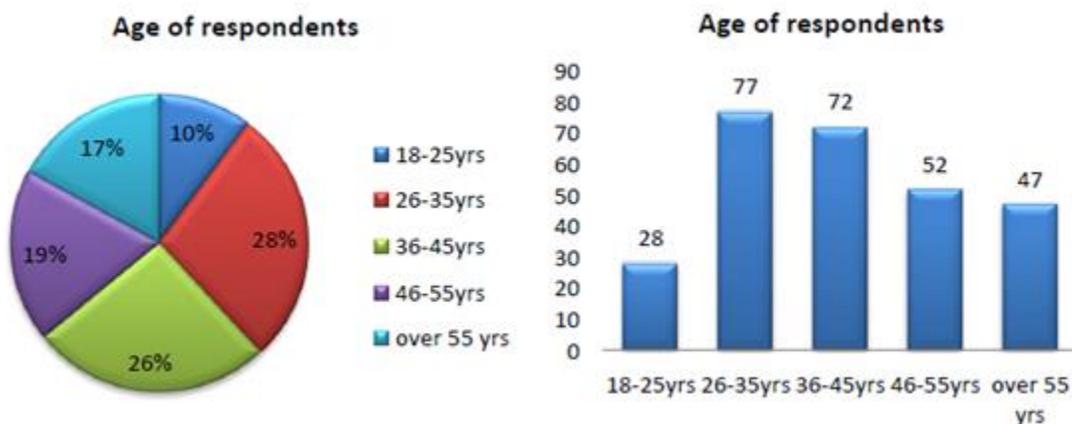
### 2.2.3 Characteristics of the respondents

A total of 276 respondents residing in 18 villages were interviewed. Out of this, 63% were males while 37% were female respondents. As reflected by the gender proportions of the respondents, the majority (80%) of the households in the communities surrounding Kiptuget forest are headed by men. However, a significant proportion (20%) of households are headed by females most of whom are widowed (see figure 2-1). The average HH size for the surveyed households is 6.



**Figure 2-1 Gender of respondents and household heads in Kiptuget communities**

The population adjacent to the forest is fairly young with large proportion (38%) of the respondents falling below 35 years of age. The 26-35yrs age group comprised the largest proportion at 28% followed by 36-45 at 26% while respondents above 55 years comprised 17% (see the figure 2-2).



**Figure 2-2 Age of the survey respondents**

Education level among the respondents varied with majority (58%) having had completed primary

education while those with just secondary education comprised 23%. Respondents with middle level college and university education comprised less than 5% of all respondents while some respondents (9%) had had no formal education.

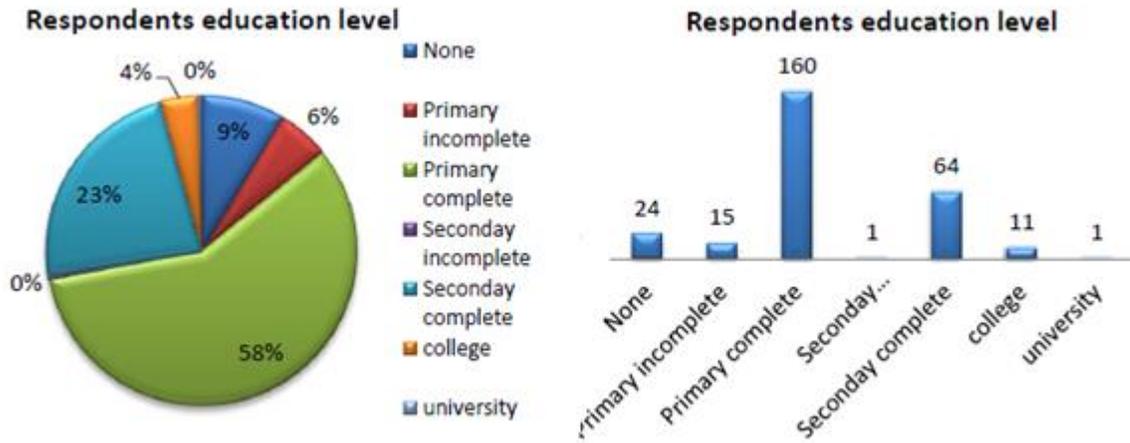


Figure 2-3 Education level among respondents

### 2.3 DESCRIPTION OF ECONOMIC ACTIVITIES

The main economic activities conducted by communities living around the forest are farming and livestock keeping. The majority (91%) of the respondents interviewed are farmers. Other occupations documented include businessmen (1%) and civil servants (1%) while 2% of the respondents were student (see figure 2-4).

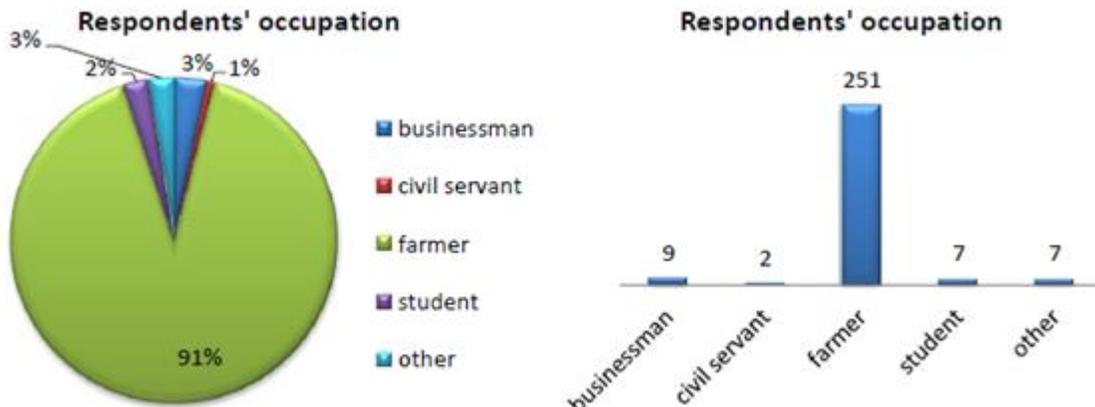


Figure 2-4 Respondents' occupation

The major source of income among the community members interviewed was sale of food crops

with 83% of total HHs followed by livestock farming and cash crop farming which is practiced by 32% of total HHs interviewed. Other sources of income included fruit farming, bee keeping, small businesses among others (see table 2.4).

**Table 2-4 sources of income for HHs in Kiptuget**

Source Of Income	No. of HH	% of total HH
Bee Keeping	7	2.54
Cash Crop Farming	87	31.52
Food Crop Farming	229	82.97
Fruit Farming	22	7.97
Livestock	87	31.52
Other	16	5.80
Ecotourism	4	1.45
Selling Water	2	0.72
Shop	4	1.45
Tree Nursery	8	2.90
Charcoal Burning	1	0.36

**NB.** The number of households in table above does not add up to 276 (total number of HHs surveyed) since some households had more than one source of income and as such the percentages do not add to 100% either

The average income for the HHs surveyed stands at KES 3585 with the majority (68%) of HHs earning between KES 1000 and KES 5000 per month, while those earnings between 5001-10,000 comprise 13%. About 7% of HH earn <KES1000 and those earning more than KES10,000 comprise less than 3% of the HH interviewed. The income level for about 10% of the HH could not be established mainly due to respondents declining to disclose their income.

Majority (92%) of the respondents are land owners while a small proportion (8%) do not own any land. Among the land owners (n=254), 49% own land jointly with extended family (family land), 45% is private land while 4% have leased land. The size of land owned among the HHs surveyed in Kiptuget ranges from 0.05 acres to 20 acres with an average size of 1 acre. This is indicative of the high rate of land fragmentation in the area.

Majority of the HH (91.7%) surveyed rear various domestic animals with only 8.3% rearing no animal at all. The most common livestock reared in the area is chicken with 78% followed by cows at 67% and sheep at 60% of total households surveyed. Other animals kept include goats, rabbits and donkeys (see table 2.5).

**Table 2-5 livestock reared by surveyed HH in Kiptuget**

Livestock type	No. HHs owning animal	% of total HHs	Average No. of animals per HH	Maximum recorded per HH	Total No. of animals
Chicken	214	77.5	10	120	1947
Cows	184	66.7	3	10	553
Sheep	164	59.4	5	20	735
Goats	44	15.9	5	22	201
Rabbits	30	10.9	9	50	246
Donkeys	2	0.7	1	1	2

It is important to note that the average number of the larger animals (cows) per HHs is much lower compared to the smaller stocks. This could be due to the scarcity of large parcels of land needed for rearing the larger stocks.

## 2.4 CURRENT UTILIZATION OF WOOD AND NON-WOOD FOREST PRODUCTS

### 2.4.1 Energy sources

The majority (99%) of households surveyed rely almost exclusively on firewood as their main source of energy for cooking and warming while a small proportion (4%) rely on charcoal (see table 2.6). Other sources of energy recorded i.e. electricity, solar and kerosene are mainly used for lighting.

**Table 2-6 Community sources of energy**

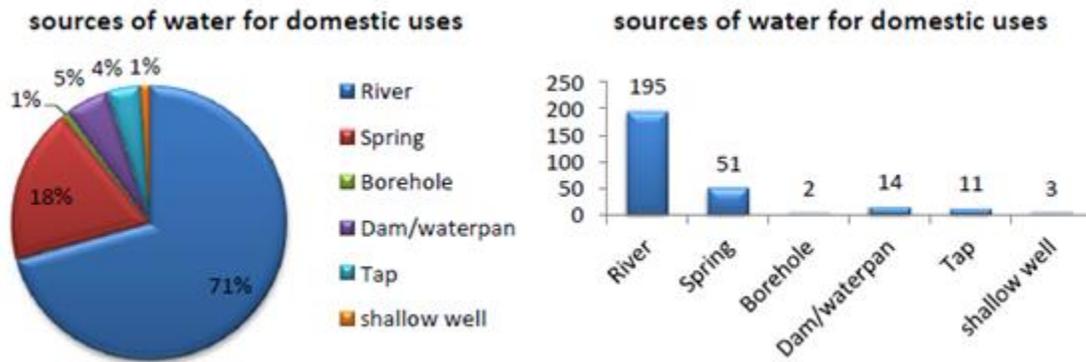
Source of energy	No. of HHs using source	% of total HH surveyed
Firewood	274	99.3
Charcoal	12	4.3
Electricity	3	1.1
Kerosene	8	2.9
Solar	2	0.7

The majority (91%) of firewood using HHs use 3-stone fireplaces while only 4% use energy saving/efficient *jikos*. This is indicative of higher consumption of firewood due to the loss of energy allowed by the design of the fireplace.

The amount of firewood used per HH per month ranged from 1 to 80 head loads with an average of 8 head loads (2 loads per week) per HH per month. The HHs spend between KES100 to KES2100 on firewood every month with an average of KES100. The source of firewood for the HHs surveyed is Kiptuget forest with the residents travelling distance ranging from 100m to 7km to fetch firewood from the forest. The average distance is 2km.

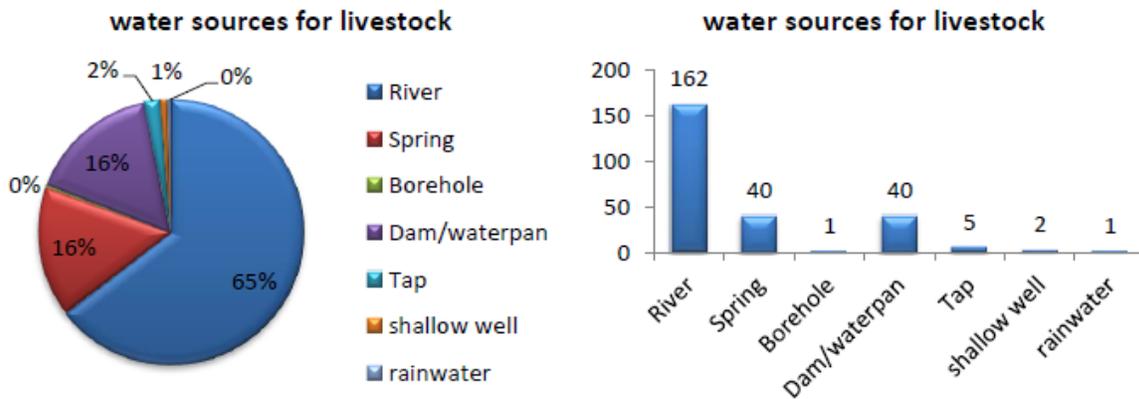
### 2.4.2 Water sources

The major source of water for household use among the respondents was river water which accounts for 71% of all respondents while about 18% rely on spring water. Only a small proportion rely on dam/water pan (5) and tap water (4%) and wells at 4% (see figure 2-8). Average distance to the various water sources for domestic use is 1km while the average amount of water for domestic use per household per day is 80litres.



**Figure 2-5 Community water sources**

Similarly water for livestock is also mainly from river water which accounts for 65% of all respondents. Other sources of water for livestock documented include spring, dam/waterpan and rain water (see figure 2-9). Average distance to water sources for livestock is 1km with an average of 60litres of water per household per day.



**Figure 2-6 Sources of water for livestock**

The majority (91%) of the households practice rain fed farming with only a small proportion (9%) comprised mainly of households close to rivers practicing irrigated farming.

## CHAPTER 3

### 3 STAKEHOLDER ANALYSIS

Kiptuget forest and adjacent villages have a wide array of stakeholders who are involved in development activities that address environment and livelihood issues. The stakeholders consist of a wide cross-section of government agencies, local and international NGO's, and local communities. The local communities identified local development partners working in the area on issues of agriculture, forestry, water, education, health and social development.

Government agencies perform varying roles in the management, conservation and protection of Kiptuget forest and in the control of forest resources utilization. Table 3-1 below presents a summary of these agencies/departments and their roles and responsibilities in Kiptuget forest management.

**Table 3-1 Government agencies and departments**

Agency/Dept	Roles	Responsibilities
<b>MoALF</b>	<ul style="list-style-type: none"> <li>Capacity building on environmental conservation, soil and water conservation, good agricultural practices, on farm tree nurseries.</li> <li>Training on agro forestry practices</li> <li>Training and installation of energy saving jikos</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of farm forestry rules (10% tree cover)</li> <li>Spring protection</li> <li>River bank protection/pegging</li> <li>Introduce hybrids for livelihood improvement</li> <li>Provision of extension services Control of pests and diseases</li> </ul>
<b>Kenya Forest Service (KFS)</b>	<ul style="list-style-type: none"> <li>Forest management and conservation</li> </ul>	<ul style="list-style-type: none"> <li>Revenue collection</li> <li>Licensing and regulating tree cutting in the forest</li> <li>Reforestation and rehabilitation of the forest</li> <li>Maintenance of plantations' in the forest</li> <li>Collaborating with other stakeholders in forest conservation and management</li> <li>Prevention and suppression of forest fires</li> <li>Promote farm forestry</li> <li>Development of ecotourism</li> </ul>
<b>Kenya Wildlife Service (KWS)</b>	<ul style="list-style-type: none"> <li>Conservation and protection of flora and fauna</li> </ul>	<ul style="list-style-type: none"> <li>Tourism development and promotion</li> <li>Human/ wildlife conflict management</li> </ul>
<b>Water Resource Management Authority (WRMA)</b>	<ul style="list-style-type: none"> <li>Development, control, conservation and regulation of water resources</li> </ul>	<ul style="list-style-type: none"> <li>Run government schemes</li> <li>Empowering communities in management of water resources</li> </ul>
<b>Department of Defence</b>	<ul style="list-style-type: none"> <li>Safeguarding transmission installations</li> </ul>	<ul style="list-style-type: none"> <li>Assist in fire fighting</li> <li>Patrols and surveillance</li> </ul>
<b>Ministry of Interior and Coordination</b>	<ul style="list-style-type: none"> <li>Sensitization and awareness creation on forest conservation and</li> </ul>	<ul style="list-style-type: none"> <li>Enforcement of national and county government laws</li> <li>Environment management</li> </ul>

	management to the community	<ul style="list-style-type: none"> <li>• Holding barazas</li> <li>• Promote agro forestry</li> <li>• Income generating programmes</li> <li>• Act as role models</li> </ul>
<b>Kenya Forest Research Institute (KEFRI)</b>	<ul style="list-style-type: none"> <li>• Research on trees, forest diseases , tree breeding, species trials, their documentation and dissemination</li> </ul>	<ul style="list-style-type: none"> <li>• Develop technical orders</li> <li>• Supply certified tree seeds</li> <li>• Demonstrate approved methodologies</li> </ul>
<b>MoEWNR</b>	<ul style="list-style-type: none"> <li>• Environment and Natural Resources Policy formulation, analysis and review</li> <li>• Conduct applied research and dissemination of research findings in land resources and geology</li> <li>• Promote, monitor and coordinate environmental activities and enforce compliance of environmental regulations and guidelines</li> </ul>	<ul style="list-style-type: none"> <li>• Assist in environmental protection and conservation education</li> <li>• Provide guidelines on environment friendly IGAs</li> <li>• Provide guidelines on sustainable resource utilization</li> <li>• Provide guidelines on pollution prevention and control especially for water resources</li> </ul>
<b>NEMA</b>	<ul style="list-style-type: none"> <li>• Promote the integration of environmental considerations into development policies, plans, programmes and projects.</li> <li>• Identify projects and programmes for which environmental audit or environmental monitoring must be conducted</li> <li>• Monitor and assess activities, including activities being carried out to ensure that the environment is not degraded by such activities.</li> <li>• Undertake, programmes intended to enhance environmental education and public awareness, about the need for sound environmental management.</li> </ul>	<ul style="list-style-type: none"> <li>• Assist in environmental protection and conservation education</li> <li>• Provide guidelines on environment friendly IGAs</li> <li>• Provide guidelines on sustainable resource utilization</li> <li>• Provide guidelines on pollution prevention and control especially for water resources</li> </ul>
<b>Kenya Rural Roads Authority (KeRRA)</b>	<ul style="list-style-type: none"> <li>• To offer guidance in the construction, maintenance and management of the rural road network in the country.</li> </ul>	<ul style="list-style-type: none"> <li>• The maintenance, rehabilitation and upgrading of the rural road network.</li> </ul>
	<ul style="list-style-type: none"> <li>• Management, development, rehabilitation and maintenance of rural roads</li> </ul>	

The communities adjacent to Kiptuget Forest are organized into groups that have clearly defined roles and responsibilities and contribute in the management, conservation of Kiptuget Forest as well as in controlling the utilization of forest resources. These groups and their roles/responsibilities are as shown in table 3-2 below.

**Table 3-2CBOs within Kiptuget forest area**

CSO'S	STATUS	ROLES	RESPONSIBILITIES
<b>KICOFA</b>	Active CFA	<ul style="list-style-type: none"> <li>• Assist KFS in forest protection and management</li> <li>• Contribute towards and benefit from sustainable forest management engagements with KFS</li> </ul>	<ul style="list-style-type: none"> <li>• Jointly protect and conserve the forest with KFS and other stakeholders</li> <li>• Assist in tree planting</li> <li>• Assist in fire fighting</li> <li>• Assist in forest patrols</li> <li>• Assist in road maintenance in the forest</li> <li>• Assist in pruning of trees</li> <li>• Assist in sivicultural thinning</li> </ul>
<b>Masaita water resource users association</b>	Active and registered consortium of users	<ul style="list-style-type: none"> <li>• Assist WRMA in water resources management and protection.</li> <li>• Contribute towards and benefit from water resources management and catchment protection and conservation</li> </ul>	<ul style="list-style-type: none"> <li>• Jointly protect and conserve the water resources in the forest with WRMA and other stakeholders</li> <li>• Assist in tree planting in catchment areas and riparian areas</li> </ul>

In addition to the government agencies and community organizations there are a few private companies and NGOs whose activities directly or indirectly affect the Kiptuget Forest and adjacent communities. Their roles and responsibilities are as shown in table 3- 3 below.

**Table 3-3 Private sector companies and NGOs in Kiptuget Forest area**

Agency/Dept	Roles	Responsibilities
<b>LCICP</b>	LCICP aims at reducing poverty through improved livelihood systems and the conservation of community natural resources and initiatives for enhanced environmental management and governance.	<ul style="list-style-type: none"> <li>• Assist in the creating linkages between community and other stakeholders and partners</li> <li>• Provide technical guidance in programmes designs and implementation</li> <li>• Contribute towards environmental education and awareness creation and development of educational materials</li> </ul>
<b>MEAP</b>	Its primary purpose is to awaken people's consciousness on self-worth and aspiration and cultivate necessary attitudes, values, perceptions, abilities and capacity to work towards achieving self and collective	<ul style="list-style-type: none"> <li>• Assist in the creating linkages between community and other stakeholders and partners</li> <li>• Provide technical guidance in programmes designs and implementation</li> <li>• Contribute towards environmental education and awareness creation and</li> </ul>

	aspiration, meet social, cultural and economic needs as well as ensure ecological integrity for current and future generations.	development of educational materials <ul style="list-style-type: none"> <li>• Assist in capacity building</li> </ul>
<b>FAN</b>	<ul style="list-style-type: none"> <li>• Advocating for an improved policy and legislative climate to support the sustainable management of natural resources.</li> <li>• Strengthening Community Based Organizations (CBOs) through training on PFM for communities and District Environment Committees (DEC)</li> </ul>	<ul style="list-style-type: none"> <li>• Assist in the creating linkages between community and other stakeholders and partners</li> <li>• Provide technical guidance in programmes designs and implementation</li> <li>• Contribute towards environmental education and awareness creation and development of educational materials</li> <li>• Assist in PFM capacity building for the KOCOFA</li> </ul>
<b>Ogiek Development Initiative Group</b>	<ul style="list-style-type: none"> <li>• Advocating for the rights of minority, forest dwelling indigenous groups in the Mau Forest Complex.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide traditional ecological knowledge on environmental conservation</li> <li>• Assist in advocating for inclusion of minority groups</li> </ul>
<b>Wood based industries (saw millers association)</b>	<ul style="list-style-type: none"> <li>• Plantation establishment Maintenance of roads infrastructure</li> <li>• Harvest mature forest plantations</li> </ul>	<ul style="list-style-type: none"> <li>• Contribute to plantation establishment</li> <li>• Assist Fight forest fires</li> <li>• Generate revenue to the government</li> <li>• Provide employment</li> </ul>
<b>Kenya Power</b>	<ul style="list-style-type: none"> <li>• Plan for sufficient electricity generation and transmission capacity to meet demand; building and maintaining the power distribution and transmission network and retailing of electricity to its customers.</li> </ul>	<ul style="list-style-type: none"> <li>• Enhance power connection in the forest area</li> <li>• Assist in the exploration and adoption of alternative energy sources</li> </ul>
<b>Base transceivers stations operators in Kiptuget forest</b>	<ul style="list-style-type: none"> <li>• Provide telecommunication services</li> </ul>	<ul style="list-style-type: none"> <li>• Assist in maintenance of access roads in the forest</li> </ul>

Networking collaboration and cooperation of these of stakeholders will be key in the achievement of the management goals and objectives set in this plan. In addition concerted action of all the stakeholders will maximize benefits and impacts while saving on resources and effort.

## **CHAPTER 4**

### **4 MANAGEMENT GOALS AND OBJECTIVES**

#### **4.1 VISION**

***“An ecologically intact and optimally functioning forest eco-system with maximum benefit to adjacent communities and the nation at large”***

#### **4.2 OBJECTIVE**

The main objective of this PFMP is to sustainably conserve, protect and utilize Kiptuget Forest ecosystem.

The specific management objectives of this plan therefore are to -:

- 1** Contribute to poverty reduction, create employment, improve livelihood through sustainable use of forest resources
- 2** Contribute to sustainable land use through soil, water catchment and biodiversity conservation/protection and the sustainable management of forests and trees.
- 3** Promote the participation of communities, private sector and other stakeholders in forest management
- 4** Promote farm forestry to produce timber, wood fuel and other forest products.
- 5** Promote forest extension to enable farmers and other stakeholders to benefit from forest management approaches and technologies

#### **4.3 PLAN CONSIDERATION**

##### ***4.3.1 Policies and legal framework***

Sustainable conservation and effective management of any given forest in Kenya will depend on the following factors:-

- 1** Accurate situation analysis of the forest
- 2** Management measures planned to tackle the problems affecting the landscape and
- 3** Policy, legal and constitutional framework to enable (2) above KFS, WRMA, KWS and the local community are the key partners in the management of Kiptuget forest. The policies and laws under which they operate on are briefly analysed below. Included also are some other national regional and global policies and agreements which may indirectly or directly influence the management of the forest.

##### **4.3.1.1 The Forest Policy and Legislation**

The Draft Forest policy and the Forests Act 2005 provides for community participation in forest management. The goal of the policy is to enhance the contribution of the forestry sector in the provision of economic social and environmental goods and services. The Forests Act also addresses the needs of the local communities and provides for partnership in the management

of state forests.

The forest policy regulates the manner in which the Act will operate. Kenya's first forest policy was formulated in 1957 through White Paper No. 85 then subsequently restated in 1968. A new Forest policy has since been prepared (through Session Paper No. 1 of 2007) awaiting parliamentary approval. It emphasizes and regulates the manner in which the adjacent communities and other stakeholders are involved in management and conservation efforts of the forest.

The repealed Forest Act Cap 385 was in total contrast with the new Forests Act of 2005 where the management of state forest was the main consideration. The new Act created the KFS, a Semi-Autonomous Authority responsible over all forests. The Act requires that all forests be managed through approved management plans and provides for participation of stakeholders. Communities living adjacent to Forest Reserve have a provision to enter into a management agreement with the Kenya Forest Service.

#### 4.3.1.2 The Wildlife Policy and Legislation

Kenya Wildlife Service (KWS) is mandated to conserve wildlife within and outside protected areas. It also supports community initiatives towards conservation and plays an advisory role to the communities by providing flexible regulations that enable the generation of optimum returns from wildlife through non-consumptive uses.

In 2013 the Wildlife Conservation and Management Act was enacted. The Act seeks to stop poaching and streamline management of wildlife services. Among other things the new legislation imposes higher penalties for poachers, penalties for grazing in protected areas for offenders, and compensation for human-wildlife conflicts. In regards to compensation, the draft policy includes compensation for destruction of crops, livestock and property as opposed to just for human injury or death as was provided for in the existing laws.

The Draft Wildlife Policy of 2007 is yet to be approved and there are efforts to further improve it.

#### 4.3.1.3 Environmental Management and Coordination (EMCA) Act of 1999

The Environmental Management and Coordination Act (EMCA) No. 8 of 1999, embraces all environmental management issues in the country.

The National Environment Management Authority (NEMA) is established under this Act as the principal instrument of government in the implementation of all policies relating to the environment. It also addresses the environmental concerns and safeguards against environmental degradation within and outside protected areas.

The Act provides the legal framework for the implementation of National Environment Action Plan (NEAP), which gives due regard to ensuring that people live in a healthy environment. It also emphasizes maximum participation by stakeholders in the development and implementation of policies, plans and processes for the management of the environment.

#### 4.3.1.4 Water Policy (Sessional Paper No. 1 of 1999) and Water Act 2002

The main objective of the water policy is the supply and the distribution of water resources throughout Kenya. It recognizes that increased human activity in the catchment area has reduced forest cover and hence is a threat to water resources.

Water Act lays out a mechanism for development of a national water resources management strategy, for the protection, management, use, development, conservation and control of water resources. The national strategy shall encompass a mechanism for determination of important water catchments as a link to the forest sector. The strategy devolves the authority over the conservation of such catchment to local stakeholders who manage the catchment in collaboration with the water management authority, also established under the Act. The strength of this Act is in its endeavour to promote participatory forest management in water catchment areas. This is achieved through the devolution of roles and responsibilities to the stakeholders namely

- Water based institutions
- Irrigation and drainage
- Water Resources Management Authority (WRMA)
- Water Services Board
- Water regulatory Board

#### 4.3.1.5 The constitution of Kenya 2010

The constitution of Kenya recognizes public participation as a vital aspect of good governance. The objective behind public participation is to facilitate the involvement of those potentially affected by or interested in a decision (and generally a decision of governmental bodies). Persons affected by a decision have a right to be involved in the process leading to the decision.

Article 10(2)(a) of the Constitution of Kenya (2010) holds that the national values and principles of governance include patriotism, national unity, sharing and devolution of power, rule of law, democracy and **participation of the people**. In addition, Part 1 of chapter 13 sets out the values and principles for public participation in the public service. Specifically, section 232(1) provides that the national values and principles of public service include, "... (d) Involvement of the people in the process of policy making...and (f) transparency and provision to the public of timely, accurate information".

In implementing the Kenya new Constitutional dispensation, the Government and people of Kenya with the support of stakeholders are developing new laws and reviewing existing laws in line with the provisions of the Constitution. This means that many acts shall have either be repealed or reviewed. Some of this Acts are as follows:-

##### 4.3.1.5.1 Grass Fire Act

The Grass Fire Act Cap 327 provides for protection of the vegetation by regulating burning of bushes, shrubs, grass, crops and stubble through issuance of permits to carry out planned burning processes within protected area, Trust land and in private lands. Controlled burning, as a natural resource conservation measure, helps in controlling pests, invasive plant species and

improving pasture.

#### **4.3.1.5.2 Local Authority Act - Cap 265**

This Act empowers County Councils to make by laws used to control cutting of timber, destruction of trees and shrubs and afforestation. The Act is applicable in trust lands where resource exploitation needs control.

#### **4.3.1.5.3 Chiefs Act Cap 128**

The application of the Chiefs' Act is predominantly related to law and order but as far as conservation and management of forests is concerned. This Act has proved to be useful when dealing with forestry problems outside gazetted forests.

Other relevant Acts include the physical planning Act, the Trust Lands Act and the Land Act.

#### **4.3.1.6 The County government Act, 2012**

This Act provides for the functions, responsibilities and powers of the County governments pursuant to chapter 11 of the constitution. It also provides for the establishment of various administrative units and offices at the county and local levels. Among the offices created under this Act are the Sub-county administrator (sec. 50), ward administrator (sec. 51), village administrator (Sec. 52) and Village council (sec. 53). Some of the functions of these offices include; undertaking developmental activities to empower communities, provision and maintenance of infrastructure, facilitating citizen participation in the development of policies and plans in the county and monitoring the implementation of policies among others.

Section 87 of the Act provides for citizen participation including timely access to information, access to the process of formulating and implementing policies as well as the protection and promotion of the interest of minorities, marginalized groups and communities.

### **4.3.2 Linkages with relevant existing planning documents.**

#### **4.3.2.1 County Planning**

The new country's constitutional dispensation provides that the County shall be responsible in development planning process through a devolved planning structure to replace the District Development Committee (DDC). This planning consideration shall incorporate all the Government Departments and state corporations, working in Marania, Molo and Rongai Districts where the forest lies and beneficiaries exist respectively.

#### **4.3.2.2 Vision 2030**

This is the country's development blue print covering the period 2008-2030. It aims at making Kenya a newly industrializing middle income country providing high quality life for all its citizens by the year 2030. The vision comes after a successful implementation of the Economic Recovery Strategy for Wealth and Employment Creation (ERS). The vision is based on three "pillars" namely; the Economic pillar, the Social pillar and the Political pillar. The economic pillar aims at providing prosperity of all Kenyans through an economic development programme aimed at achieving an average Gross Domestic Product (GDP) growth rate of 10 % per annum for the next 25 years. The social pillar seeks to build "a just and cohesive society with social equity in a clean and secure environment". The political pillar aims at realising a democratic political system founded on issue-

based politics that respects the rule of law, and protects the rights and freedoms of every individual in the Kenyan society. The *Kenya Vision 2030* is to be implemented in successive five-year Medium Term plans with the first such plan covering the period 2008 – 2012.

#### **4.3.3 Linkage with regional and international agreements and conventions**

The Government of Kenya is a signatory to international/regional treaties and conventions on conservation of threatened, endangered, endemic species and fragile ecosystems. The management plan will recognize the roles and responsibilities of the implementing stakeholders in the coordination of the relevant multilateral environmental agreements (MEAs); Convention on Biological Diversity (CBD), the Global Forest Principles (GFP), Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), Ramsar Convention, , UNFCCC, East African Community Secretariat (Cross border natural resource management).

##### **4.3.3.1 Convention on International Treaty on Endangered Species (CITES)**

The regulations of CITES are statutory and ensure that trade in specimens of wild animals and plants do not threaten their survival. There are several CITES agencies in Kenya. Trade in CITES listed species require clearance from the authorized offices. Kiptuget is a home for some of the animal species such as Buffaloes Bushbuck, Giant forest hog, Red duiker, Impala, with several primates such as Colombus monkey, Blue monkey, Debrazza monkey, and Olive baboons. There is presence of several Carnivorous animals including leopards, spotted hyena, civet and genet cats.

Plan strategies that impact on the exploitation and / or trade of specimens of CITES species will take cognizance of CITES requirements as directed by the relevant authorities.

##### **4.3.3.2 Convention on Biological Diversity (CBD)**

The Convention on Biological Diversity (CBD) stipulates that it is the responsibility of national states to conserve their biological diversity and to use their biological resources in a sustainable manner. It further notes that it is vital to anticipate, prevent and attack the causes of significant reduction or loss of biological diversity at source, and that in situ conservation of ecosystems and natural habitats is a fundamental requirement for the conservation of biological diversity.

Kenya has undertaken activities that are consistent with the goals of the Convention, and has for example taken measures to develop a national strategy for the conservation of biological diversity and has established a system of protecting the endangered species both in the protected and dispersal areas. The interest of CBD is enshrined in the existing laws and policies.

##### **4.3.3.3 Millennium Development Goals (MDGs)**

In September 2000, the United Nations general Assembly adopted the Millennium Declaration on a core of development issues including development and poverty reduction. The resolution included freeing people from the abject and dehumanizing conditions of extreme poverty, creating national and global environments for development and elimination of poverty, gender equality and empowerment, promotion of good governance among member states, promotion of

trade and debt relief, and to address the special needs of small island developing countries and landlocked developing countries.

The resolutions including specific indicators of progress with respect to Implementation of the United Nations Millennium Declaration proposed eight goals as follows:

- Eradication of extreme poverty and hunger
- Achieve Universal primary education
- Promote gender equality and empower women
- Reduce child mortality
- Improve maternal health
- Combat HIV.AIDS, Malaria and other diseases
- Ensure environmental sustainability
- Develop a Global partnership for development

These goals are envisaged to be attained by the year 2015 that responds to the world's main development challenges. All the goals cited are relevant for the area covered by the plan.

#### **4.3.3.4 United Nations Framework Convention for Climate Change (UNFCCC)**

This international agreement aims to reduce both carbon dioxide emissions and the presence of greenhouse gases. Countries that ratify the Kyoto Protocol are assigned maximum carbon emission levels and can participate in carbon credit trading. Emitting more than the assigned limit will cause the violating country to be penalized by lowering its emission limitation in the consecutive period.

The Kyoto Protocol separates countries into two groups. Annex I includes developed nations, while Non-Annex I refers to developing countries. Emission limitations are only placed on Annex I countries. Non-Annex I nations participate by investing in projects that lower emissions in their own countries. For these projects, they earn carbon credits. These credits can be traded or sold to Annex I countries, which allow them a higher level of maximum carbon emissions for that period.

Kiptuget Forest is important in sequestering the carbon as they have a huge chunk of natural forest.

#### **4.3.3.4.1 Global Forest Principles (GFP)**

The Global Forest Principles are a non-legally binding authoritative statement of principles for a global consensus on management, conservation and sustainable development of all types of forests in the world. The Forest Principles arose from the realization of the importance of forest resources and concern over the threats to these resources worldwide. The principles apply to all types of forests, natural and re-established, in all geographic regions and climatic zones.

#### **4.3.3.4.2 Forest Principles**

- 1 forestry development by promoting participation of local communities, indigenous people, industries, labour, NGOs, forest dwellers and women in the development,

- implementation and planning of national forest policies;
- 2 Advocate that national policies and strategies should provide a framework for increased efforts in management, conservation and sustainable development of forests and forest lands;
  - 3 Stress that decisions on management, conservation and sustainable development should be based on a comprehensive assessment of economic and non-economic values;
  - 4 Develop policies and legislation that will ensure that unique vegetation types are conserved for cultural, spiritual, historical, and religious needs, as well as for biodiversity value;
  - 5 Incorporate the process of environmental impact assessment into national policies, especially where actions are likely to have significant adverse impacts on critical forest resources.

Kiptuget Forest is in line with these principles as evidenced by involvement of the local community in developing this participatory plan which on implementation will ensure sustainability of the forest.

#### 4.3.4 Forest management and utilization zonation

The zonation identified clear external as well as internal physical boundaries based on available data and set criteria taking cognizance of regional, and local considerations. The zonation criteria was based on vegetation type, conservation importance and land usage. Kiptuget forest was zoned into 4 zones namely protected, conservation, productive and community intervention zones.

**Table 4-1 Kiptuget forest zonation**

Zone	Criteria	Management objective
<b>Protected areas (Non-consumptive uses)</b>	<ul style="list-style-type: none"> <li>• Nature reserves</li> <li>• Biodiversity hot spots</li> <li>• Wetlands</li> <li>• Moorland</li> </ul>	<ul style="list-style-type: none"> <li>• Protect the ecological integrity of the protected areas</li> <li>• Preservation of the water catchment function</li> <li>• Ecological research and education PES</li> </ul>
<b>Conservation (consumptive &amp; non-consumptive uses)</b>	<ul style="list-style-type: none"> <li>• Natural forest, bamboo and glades not zoned as protected area</li> </ul>	<ul style="list-style-type: none"> <li>• Restoration of degraded forest areas</li> <li>• Preservation of the water catchment function</li> </ul>
		<ul style="list-style-type: none"> <li>• Development of ecotourism &amp; -Nature based enterprise</li> <li>• Controlled utilization of wood and NWFP</li> <li>• PFM activities</li> <li>• Ecological research and education PES</li> </ul>
<b>Productive</b>	<ul style="list-style-type: none"> <li>• Exotic plantation areas</li> </ul>	<ul style="list-style-type: none"> <li>• Development of forest plantations for round wood production.</li> </ul>
<b>Community intervention zone</b>	<ul style="list-style-type: none"> <li>• Farmlands within 5km from Forest Reserve boundary.</li> </ul>	<ul style="list-style-type: none"> <li>• Promote on-farm tree growing</li> <li>• Promote income generating activities</li> <li>• Support community institutions in forestry programmes</li> </ul>

		• Protection of riparian belt and hilltop afforestation
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The protection zone within Kiptuget forest comprise of the bamboo zone at the higher elevation areas of the forest and the adjacent natural/indigenous forest that is intact while the conservation zone comprise of areas within the bamboo and natural/indigenous forest that have been degraded/disturbed. The productive zone comprises of the exotic plantation areas and forest areas under the PELIS programme. It also includes potential extractive product areas e.g. quarries. The community intervention zone comprises of the farmlands and settlement areas surrounding Kiptuget forest that include Sigowet, Sinendet, Mulima and Koige village areas (see figure 4-1)

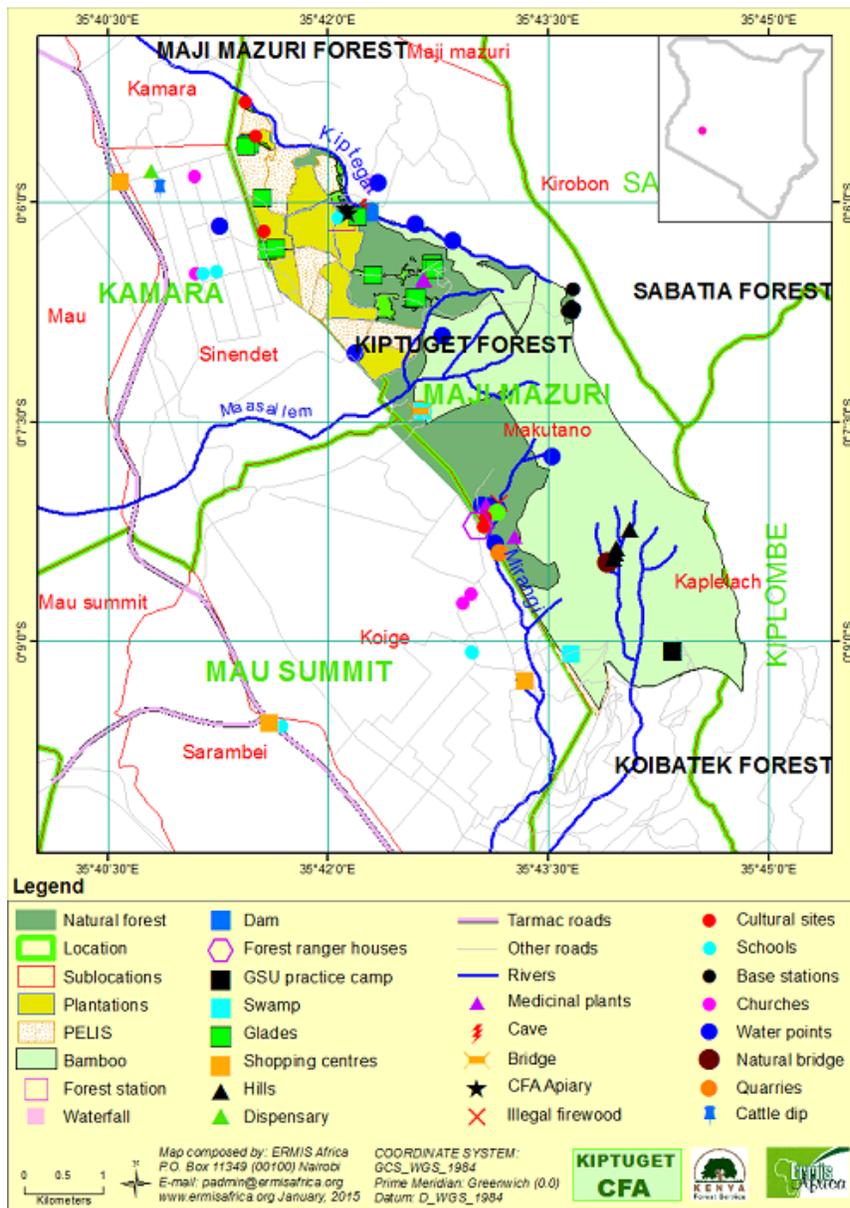


Figure 4-1 Map showing the Kiptuget forest zones

## **CHAPTER 5**

### **6 MANAGEMENT PROGRAMMES**

Six management programmes are presented below and for each; challenges, specific objectives, time frame, lead agencies and estimated budgets are given.

Each activity has been given a priority time frame rating from year 1–5 to indicate how soon it should be tackled in accordance with corresponding years in the plan. The time frame is also categorized in terms quarters as shown in the table below.

**Table 5-1 Quarterlies for the implementation of Kiptuget PFMP for 5 years**

<b>Year</b>	<b>Quarterlies</b>			
Year 1 (Y1)	Y1Q1	Y1Q2	Y1Q3	Y1Q4
Year 2 (Y2)	Y2Q1	Y2Q2	Y2Q3	Y2Q4
Year 3 (Y3)	Y3Q1	Y3Q2	Y3Q3	Y3Q4
Year 4 (Y4)	Y4Q1	Y4Q2	Y4Q3	Y4Q4
Year 5 (Y5)	Y5Q1	Y5Q2	Y5Q3	Y5Q5

The five year plan will be implemented under six programmes with various components as discussed in the following sections.

*NB. The time frame indicate in the management action table in the sections that follow indicate when the activities should begin rather than the duration of the activities as some may run over longer periods than the indicated quarter. While for activities that need to be implemented throughout the plan implementation period have a time frame indication of Y1-Y5.*

#### **6.1 PROTECTION ZONE PROGRAMME**

##### **5.1.1 Background**

The protection zone of Kiptuget forest comprise of natural indigenous forest and bamboo zone in the higher elevation areas of the forest. These zones are rich in biodiversity and serve as important water catchment areas. The indigenous forest covers an area of 450ha and is comprised of woody sections that are dominated by *Podocarpus falcatus*, *Juniperus procera*, *Olea africana*, *Paveta gardeniifolia*, *Dombeya kirkii*, and *Dombeya burgessiae* and bamboo (*Arudinaria alpina*).

Presently, access and utilization of resources in the areas is prohibited and patrolling has been relied upon as the main protection activity but despite these efforts, it has not been possible to control the level of unregulated use. However, there are minimal incidents of illegal post and bamboo harvesting, poaching, charcoal burning and animal grazing in the protection zone. In addition the areas are prone to frequent forest fires and soil erosion.

### 5.1.2 Management challenges

The main challenges and constraints in the management of the protection zone are;

- 1 Inadequate staff – the forest station lack adequate staff (forest rangers) to enforce the rule/regulations. Due to their small number the rangers are unable to effectively patrol the areas.
- 2 Vehicular mobility – the forest station lack transport means for the enforcement personnel to reach the areas promptly when need arise.
- 3 Lack of proper fire surveillance and communication equipment as well as firefighting equipment and trained fire responders
- 4 Accessibility of the protection zone - The access roads to these areas of the forest are in poor condition and at times impassable.
- 5 Lack of awareness among forest users – the adjacent communities have very limited knowledge of the rules/regulations regarding utilization of resources in the protection zone.

### 5.1.3 Programme objectives

- 1 To create and/or increase awareness on forest conservation/protection among the neighbouring communities.
- 2 To protect water catchment areas within the natural forest and bamboo zone
- 3 To mitigate the occurrence of forest fires and enhance the community's and forest station's capacity to control forest fires
- 4 To undertake rehabilitation of degraded areas in the protected zone of the forest.

### 5.1.4 Management actions

**Table 5-2 Management actions for the protection zone programme**

MANAGEMENT OBJECTIVE	ACTIVITIES	INDICATORS	TIME FRAME	RESPONSIBILITY	BUDGET
To create and /or awareness on forest conservation / protection among the neighbouring communities	Hold 1 community baraza per village (total 18) to create awareness on forest	No. of barazas held No. of participants	Y1Q1	KFS, CFA, County Administrators, MoALF, Community development	450,000
	conservation and protection	the barazas		officers, Local NGOs (e.g. FAN, LCICP, NECOFA, MEAP)	
	Develop 5000 educative brochures/pamphlets on forest conservation and protection for distribution among community members	No. brochures/pamphlets printed and distributed	Y1Q1	KFS, CFA, County Administrators, MoALF, Social development officers, local NGOs (e.g. FAN, LCICP, NECOFA, MEAP)	500,000
	Erection of 10	No. of sign posts	Y1Q1	CFA, KFS, local NGOs	100,000

	signage to mark and warn off people from the protected areas within the forest	erected		(e.g. FAN, LCICP, NECOFA, MEAP)	
To protect water catchment areas within the natural forest and bamboo zone	Identify water spring areas to be protected and fencing off	No. of water sources identified and protected	Y1Q2	MoEWNR, WRMA, KFS, CFA	500,000
	Procure and plant 100,000 indigenous trees around water catchment areas (20,000 trees per year for 5 years)	No. of ha and indigenous trees planted % increase in vegetation cover	Y1-Y5	KFS, CFA, local NGOs, MoEWNR, WRMA	5,000,000
	Formulation and sensitization of CFA by-laws on access and use of resources in the forest	Registration of the by-laws No. of awareness meetings held No. of copies of the by-laws produced	Y1Q2 & Q3	KFS, CFA, MoALF, MoEWNR, Local and County administration, local NGOs, community development officers	500,000
	Hold 1 baraza per village (total 18) to educate the community on the by-laws	No. of barazas held No. of participants attending the barazas	Y1Q2 & Q3	KFS, CFA, County Administrators, MoALF, Social development officers, local NGOS	450,000
To mitigate the occurrence of forest fires and enhance the community's and forest station's capacity to control forest fires	Recruit and train 6 community scouts to patrol and fight fires to complement the KFS staff	No. of scout recruited and trained	Y1Q1	CFA, KFS	100,000
	Equip the station with firefighting equipment	No of PEE procured	Y1Q1	CFA, KFS	5,000,000
	Purchase 2 Yamaha motorbikes for patrolling scouts	No. of Motorbikes procured	Y1Q1	CFA, KFS	900,000
	Maintenance of 80km fire breaks through clearing of vegetation at least once per year	Km of Firebreaks maintained per year	Y1-Y5	CFA, KFS	4,000,000
To Control and reduce soil erosion within the protected zone of the forest	Procure and plant 100,000 (20,000 per year) indigenous trees in areas within the forest that are bare or less dense	No. of trees planted and survival rate	Y1-Y5	CFA, KFS, MoEWNR, MoALF, local NGOs	5,000,000

	Establish and maintain diversion drains (300 total) and retention ditches (30 in total) along the major water ways within the forest	No. of drains and ditches established	Y1-Y5	KFS, CFA, MoALF, Local NGOs	150,000
	Construct 600 check dams	No. of check dams constructed	Y2Q1	KFS, CFA, MoALF, MoEWNR, Local NGOs	250,000
	Enforcement of grazing restriction within the protection zone	No. of people prosecuted for offences	Y1-Y5	KFS, CFA, local and County administration	250,000

*NB. The CFA by-laws formulated under this programme will be on access and resources utilization in all forest areas.*

## 5.2 CONSERVATION ZONE PROGRAMME

### 5.2.1 Background

Kiptuget Forest has great importance as a unique ecosystem which contains a number of flora and fauna species most of which is hosted in the natural forest and bamboo zones of the forest. The forest is surrounded by a rapidly increasing population which is highly dependent on it for subsistence and commercial needs and as such levels of unsustainable forest use have increased resulting in forest resource decline.

Presently, forest patrols by the KFS rangers and occasional tree planting activities have been the only efforts extended towards conservation of the natural forest and bamboo zone. However these efforts have been inadequate in curbing vices such as posts and bamboo harvesting, charcoal burning, firewood harvesting and illegal grazing which have contributed to forest destruction.

### 5.2.2 Management challenges

The main challenges and constraints in the management of the conservation zone are similar to those listed under the protection zone management challenges (section 5.1.2). Additionally, the conservation programme faces the following challenges;

- 1 The forest station has only one functional tree nursery with a production capacity of 80,000 seedlings per year and mainly produces exotic tree species.
- 2 Inaccessibility to upper areas as a result of poor infrastructure
- 3 Lack of awareness among forest users – the community's knowledge and awareness on the importance of forest biodiversity and conservation is limited.
- 4 Low participation by the CFA

### 5.2.3 Programme objectives

- 1 Enhance the community's capacity to effectively engage in co-management of Kiptuget forest
- 2 To rehabilitate degraded areas of the Kiptuget natural forest
- 3 To enrich the biodiversity within Kiptuget natural forest

### 3.2.4 Management actions

**Table 5-3 Management actions for Conservation zone programme**

MANAGEMENT OBJECTIVE	ACTIVITIES	INDICATORS	TIME FRAME	RESPONSIBILITY	BUDGET
Enhance the community's capacity to effectively engage in co-management of Kiptuget forest	Conduct capacity building for the CFA in the forest management including technical training, group dynamics, leadership, finance management and record keeping, project management etc.	No. of capacity building events held No. of persons trained	Y1Q2	KFS, CFA, Social development office, Local NGOs, Line ministries	1,500,000
To rehabilitate degraded areas of the Kiptuget natural forest	Identify sites for the establishment of tree nurseries	Sites for nurseries identified	Y2Q1	KFS, CFA	-
	To establish 2 tree nurseries with a capacity of 50,000 indigenous seedlings	No. of operational tree nurseries established	Y2Q1	KFS, CFA	700,000
	Plant 10,000 indigenous trees per year over 5 years (total 50,000) in the degraded areas	No. of trees planted and survival rate		KFS, CFA	325,000
	Reintroduction of animal species such as dik dik, buffaloes, bongo (antelope), gazelles etc. which have diminished over the years	No. of animal species re-introduced	Y3Q1	KFS, CFA, KWS	Cost to be established in consultation with KWS
To enrich the biodiversity within the Kiptuget natural forest	Biodiversity enrichment tree planting e.g. medicinal	No. of enrichment trees planted and survival	Y2Q3	KFS, CFA	90,000

	trees/herbs, scattered important tree species (20,000 seedlings)	rate			
	Create a nature reserve	Nature reserve established	-Y5	KFS, CFA, KWS, Line ministries	Cost to be established in consultation with the relevant agencies

### 5.3 PRODUCTIVE ZONE PROGRAMME

#### 5.3.1 Background

A significant portion of Kiptuget forest is exotic plantation forest which forms the productive zone of the forest. The plantations are at different age classes and species and as such managed differently, however, general management activities include pruning and thinning which is carried out by the community member in collaboration with KFS. The plantation forest blocks are as shown in table 5-4.

**Table 5-4 Area under plantation in Kiptuget Forest**

TREE SPECIES	TOTAL AREA (ha)
<i>Pinus patula</i> (Pine)	131.0
<i>Cupressus lusitanica</i> (cypress)	171.4
<i>Eucalyptus saligna</i> (eucalyptus)	18.2
Cedar	2
<b>Total plantation area</b>	<b>320.6</b>

Out of the total area under plantation forest 133.9 ha are under PELIS programme. The areas under PELIS are managed by the community members who have been allocated cultivation plots in the forest areas. Presently the farmers are allowed to cultivate the lands for a period of 3 years while taking care of the trees for a 3 year period after which cultivation is terminated. Table 5-5 below shows sub-compartments under PELIS in Kiptuget forest

**Table 5-5 Areas under PELIS in Kiptuget forest**

BLOCK	TOTAL AREA(ha)
IA	5.0
IF	6.8
1C	20.6
1J	2.0
2D	12.6
2B	8.1

2F	17.5
2H	16.3
6A	22.4
6B	19.6
6C	3.0
<b>TOTAL</b>	<b>133.9</b>

The PELIS programme has been largely successful in securing food security with hundreds of community members relying on produce from the cultivated plots for their livelihood, however, there have been challenges (see section 5.3.2 below) resulting in poor tree survival rates in some instances.

### 5.3.2 Management challenges

The main management constraints in the productive zone include;

1. Illegal use of herbicides that kill young seedlings – this is mainly due to people being unaware of the effect of herbicides on the tree seedlings.
2. The recently uplifted ban on logging led to enormous backlogs in silvicultural operations this has resulted poor quality of the plantations.
3. Limited farmers knowledge and awareness leading to poor farming methods and practices that are detrimental to tree survival e.g. uprooting young trees to make way for crops, cultivation sloppy areas (>30% gradient) and fire breaks.
4. Reluctance of CFA to be engaged in plantation establishment activities

### 5.3.3 Programme objectives

- 1 To improve the quality of plantations in Kiptuget forest
- 2 To enforce CFA by-laws and rules/regulations governing the PELIS programme
- 3 To increase plantation establishment

### 5.3.4 Management actions

**Table 5-6 Management actions for productive zone programme**

MANAGEMENT OBJECTIVE	ACTIVITIES	INDICATORS	TIME FRAME	RESPONSIBILITY	BUDGET
To improve the quality of plantation in Kiptuget forest	To train 20 ToTs from the Community members on best practices in management of trees	No. of ToTs trained	Y1Q3	KFS, CFA, Saw millers	400,000
	Undertake silvicultural operations such as pruning, coppice reduction and	Ha pruned /thinned per year	Y1-Y5	KFS, CFA, Saw millers	1,200,000

	thinning of trees				
	Procure silvicultural operations tools power saws, 50 pruning saws, 20 axes, 5 flat files, 5 triangular files, 20 secateurs	No. and types of tools procured	Y1Q3	KFS, CFA, Saw millers	230,000
To follow up and enforce by-laws related to plantation management	Conduct patrols to monitor PELIS areas (by forest rangers and/or scouts)	No. of persons prosecuted	Y1-Y5	KFS, CFA, Scouts	500,000
To increase plantation establishment	Setting up CFA nurseries to raise seedlings for planting in PELIS areas.	No of functional nurseries No. of ha planted with trees	Y1-Y5	KFS, CFA	1,000,000

## 5.4 INTERVENTION ZONE PROGRAMME

### 5.4.1 Background

Subsistence use of Kiptuget Forest is probably the greatest threat to its biodiversity, but it is the aspect of the forest which is most valued amongst forest-adjacent communities.

Local communities are dependent on the forest for a range of their livelihood needs including firewood, cash and food crop farming, bamboo for fencing and construction, pasture for their animals among others. These activities largely contribute to the degradation of the forest, however, they are not stand alone issues rather they are indicative of the socioeconomic circumstances of the surrounding communities. The areas falling within the intervention zone are as shown below;

**Table 5-7 List of villages in surrounding Kiptuget Forest**

Area/sub-location	Villages		
	Level 1	Level 2	Level 3
Tabora	Bureti	Bureti ne tebes	
Sinendet	Sigowet Miti moja	Tuiyotich Chepsir Silibwet	Chesubeno
Big 15	Big 15	Maraba	
Mlima	Mirangi-ini London	Thayu Muthingi	
Sinendet A/Koige		Kapcheptoror Koige	Kiwaja mosop

The adjacent community is plagued by high level of poverty, low education levels, unemployment among the youths among other issues which pushes them to almost entirely rely on the forest resources for livelihood. The unsustainable use of the resources experienced presently, is largely out of necessity to earn a livelihood and the lack of practical alternative sources of livelihood.

### 5.4.2 Management challenges

The main management constraints/challenges experienced among communities adjacent to Kiptuget forest include;

- High levels of poverty
- Lack of capital and knowhow for income generating activities
- Land fragmentation that puts pressure on the available land
- High rates of unemployment especially among the youth
- Low level of education/literacy level
- Poor attitude towards forest conservation among the community members
- Low adoption rates in agro-forestry and tree farming
- Low adoption of new energy saving technologies to reduce dependency on forest

### 5.4.3 Programme objectives

The main objective of these programmes is to improve livelihoods and alleviate poverty through the achievement of the following objectives;

- To improve farm productivity for both crops and animals in forest adjacent area
- To promote agro-forestry among the communities adjacent to Kiptuget forest
- To promote the use of alternative sources of energy and the adoption of appropriate energy efficiency technologies e.g. energy saving *jikos*
- To promote the establishment of on-farm and off-farm income generating activities (IGAs) among the community members
- Improve access to water in areas adjacent to Kiptuget forest.
- Create awareness on the importance of education among communities adjacent to Kiptuget forest.

### 5.4.4 Management actions

**Table 5-8 Management actions for intervention zone programme**

MANAGEMENT OBJECTIVE	ACTIVITIES	INDICATORS	TIME FRAME	RESPONSIBILITY	BUDGET
To improve farm productivity for both crop and animals	Put in place soil conservation measures e.g. terraces, cut of drains, furrows in farms around Kiptuget	<ul style="list-style-type: none"> <li>• % increase in yields</li> <li>• No. of farms with soil conservation structures</li> </ul>	Y1Q4-Y5	MoALF, CFA, LCICP, KFS	2,000,000
	Conduct capacity building for farmers on improved methods of farming through CIGs training, field days, demonstration sites etc.	<ul style="list-style-type: none"> <li>• No. of people trained</li> <li>• No. of trainings carried out</li> <li>• No. of common interest groups established</li> </ul>	Y1Q4	MoALF, CFA, LCICP, KFS	2,500,000

	Introduction of high yielding crops and animals to the farmers	<ul style="list-style-type: none"> <li>No. of high yielding crops/animals introduced</li> </ul>	Y2Q1	MoALF, KALRO, CFA, LCICP, KFS	1,500,000
	Develop market linkages for products through the formation of umbrella associations	<ul style="list-style-type: none"> <li>Established umbrella farmers' association</li> <li>No. of linkages developed</li> </ul>	Y2Q2	MoALF, CFA, LCICP, KFS, Local NGOs, social development office	2,000,000
	Promote proper product storage/preservation and value addition	<ul style="list-style-type: none"> <li>No. of value added products</li> </ul>	Y2Q3	MoALF, CFA, LCICP, KFS	5,000,000
To promote agro-forestry among communities adjacent to the forest	Promote the establishment of on farm tree nurseries through community education	<ul style="list-style-type: none"> <li>No. of on farm tree nurseries established</li> <li>No. of trainings conducted</li> </ul>	Y2Q2	KFS, CFA, MoALF, LCICP	1,000,000
	Promote the planting of high value tree species e.g. fruit trees, medicinal trees etc.	<ul style="list-style-type: none"> <li>No. of trees planted</li> </ul>	Y2Q2	KFS, CFA, MoALF	500,000
	Develop wood lots for firewood and timber	<ul style="list-style-type: none"> <li>Ha under woodlots</li> <li>No. of farms with woodlots</li> </ul>	Y2Q2	KFS, CFA, MoALF	500,000
To promote the use of alternative sources of energy and the adoption of appropriate energy efficiency technologies e.g. energy saving <i>jikos</i>	Conduct capacity building on the use of alternative energy and energy efficient technologies	<ul style="list-style-type: none"> <li>No. of capacity building events</li> <li>No. of participants</li> </ul>	Y2Q3	KFS, CFA, Local NGOs	1,500,000
	Promote alternative energy technologies e.g. biogas, solar, fireless cooker, bio-latrines etc.	<ul style="list-style-type: none"> <li>No. of technology promoted and established</li> </ul>	Y2Q3	KFS, CFA, Local NGOs, Min. of energy	1,000,000
	Establish 4 demonstration sites for alternative energy technologies (biogas, fireless cooker and bio latrines) -one in each of the four areas	<ul style="list-style-type: none"> <li>No. of operational demonstration sites established</li> </ul>	Y2Q4	KFS, CFA, Local NGOs, Min. of energy	10,000,000

	Procure and distribute energy saving jikos – purchase 200/area (total 800)	<ul style="list-style-type: none"> <li>No. of jikos procured and installed</li> </ul>		KFS, CFA, Local NGOs, Min. of energy	2,000,000
	Conduct training of 20 artisans to construct rocket stoves in the community	<ul style="list-style-type: none"> <li>No of artisans trained.</li> </ul>	Y2Q4	KFS, CFA, Local NGOs, Min. of energy	250,000
To promote the establishment of on-farm and off-farm income generating activities among the community members	Conduct capacity building for farmers on the temperate fruits farming e.g. apples, peaches, pears, plums, passion, tree tomatoes	<ul style="list-style-type: none"> <li>No. of capacity building events</li> <li>No. of participants</li> </ul>	Y2Q3	KFS, CFA, MoALF	1,500,000
	Establishment of a demonstration site for temperate fruits farming	<ul style="list-style-type: none"> <li>Operational demonstration site</li> </ul>	Y3Q1	KFS, CFA, MoALF	1,000,000
	Establish a new apiary at Mlima and upscale the existing apiary	<ul style="list-style-type: none"> <li>Apiary established and up scaled</li> </ul>	Y3Q1	KFS, CFA, MoALF	750,000
	Promote establishment of cottage industries e.g. wool spinning	<ul style="list-style-type: none"> <li>No of cottage industries established</li> </ul>	Y3Q1	KFS, CFA, line ministries, social development office	1,000,000
	Establish 4 demo sites for Dairy goats for CIGs	<ul style="list-style-type: none"> <li>No. of operational demo sites</li> </ul>	Y3Q1	KFS, CFA, MoALF	2,000,000
	Establish 4 demo Fish ponds	<ul style="list-style-type: none"> <li>No. of operational demo sites</li> </ul>	Y3Q1	KFS, CFA, MoALF	2,000,000
	Establish 4 demo sites for poultry farming	<ul style="list-style-type: none"> <li>No. of operational demo sites</li> </ul>	Y3Q1	KFS, CFA, MoALF	1,000,000
	Establish 4 demo sites for Rabbit keeping	<ul style="list-style-type: none"> <li>No. of operational demo sites</li> </ul>	Y3Q1	KFS, CFA, MoALF	1,500,000
Improve access to water in areas adjacent to Kiptuget forest.	Promote rain water harvesting technologies in the community	<ul style="list-style-type: none"> <li>No. of RWH systems established</li> </ul>	Y2Q1	KFS, CFA, MoEWNR, local NGOs	1,500,000

	Expand the mains piping for water distribution in the villages and establish water kiosks for easier access to water	<ul style="list-style-type: none"> <li>Km of mains piping laid</li> <li>No. of water kiosks established</li> </ul>	Y2Q2	KFS, CFA, MoEWNR, local NGOs	3,000,000
Create awareness on the importance of education among communities adjacent to Kiptuget forest	Hold 4 barazas (one per area) to educate the community on the importance of education.	<ul style="list-style-type: none"> <li>No. of barazas held</li> <li>No. of participants</li> </ul>	Y1Q4	KFS, CFA, Ministry of Education, social development office, local NGOs, local and County administration	100,000

## 5.5 ECOTOURISM AND PAYMENT FOR ENVIRONMENTAL SERVICES (PES) PROGRAMME

### 5.5.1 Background

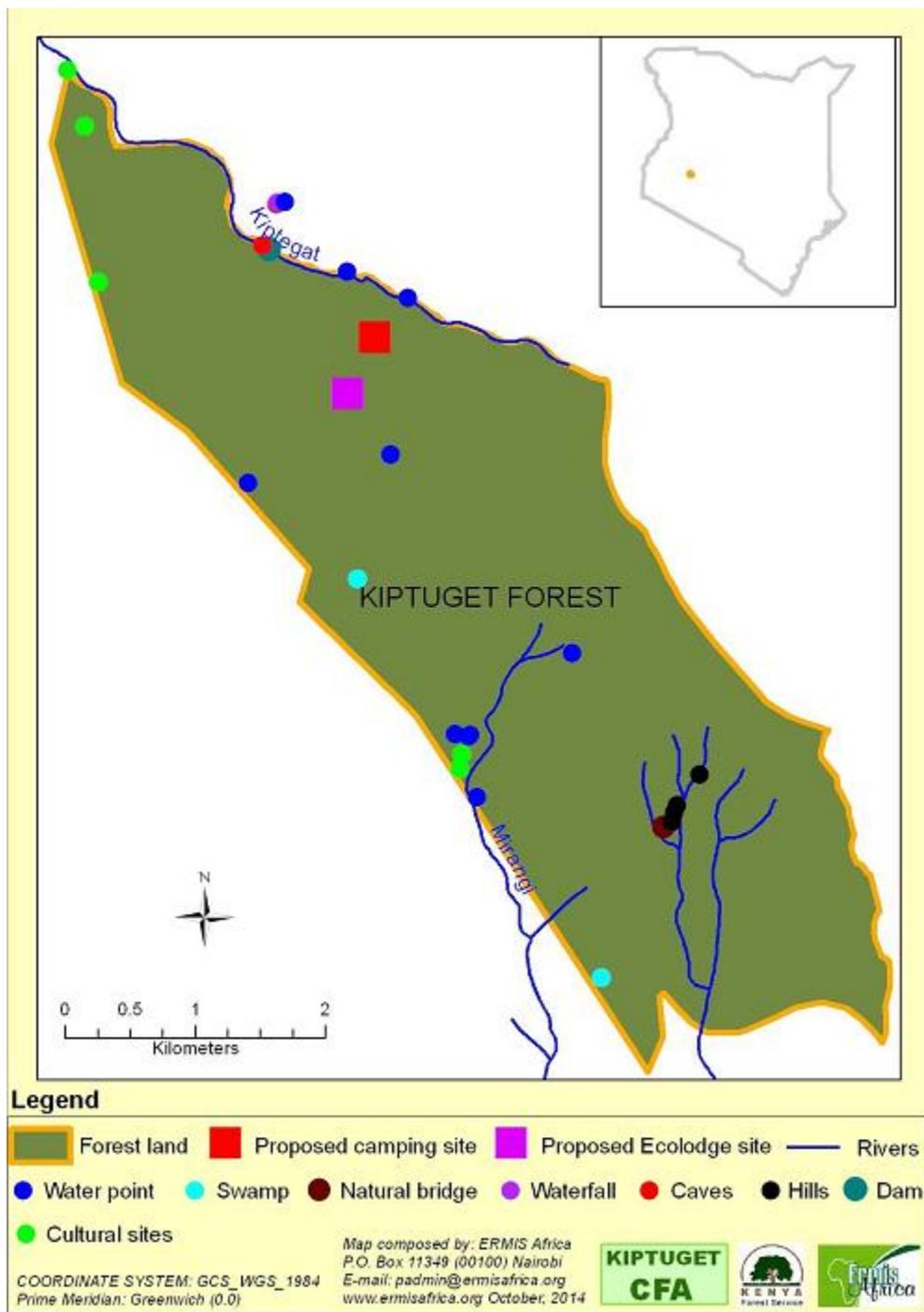
Kiptuget forest has some potential of eco-tourism which is yet to be exploited including nature trails, water fall, scenic site, and pre-historic caves. The highest point in the forest provides a great view over the surrounding areas and on a clear day one could see Lake Victoria. The area falls within Lake Baringo and Lake Bogoria Tourist Circuit which could link it to Lake Nakuru National Park. Presently, there are no ecotourism or PES activities undertaken within the forest.

During the mapping and zonation, the community also identified areas and resources within the forest that have the potential for ecotourism (see figure 5-1)

### 5.5.2 Management challenges

Presently there are no ecotourism activities and as such no actual management challenges. However, the establishment of ecotourism may be hindered by the following challenges;

- Poor infrastructure and lack of the basic facilities needed to establish ecotourism
- Lack of capital resources for development and expertise in the field
- Setting up mechanisms for sharing benefits accruing from such ventures



**Figure 5-1 Map showing potential ecotourism sites in Kiptuget forest**

### 5.5.3 Programme objectives

- 1 To identify sites and potential partners for ecotourism development within Kiptuget Forest
- 2 To undertake a feasibility appraisal of identified eco-tourism sites
- 3 To identify opportunities for PES and potential PES projects that could be carried out in Kiptuget forest.

### 5.5.4 Management actions

MANAGEMENT OBJECTIVE	ACTIVITIES	INDICATORS	TIME FRAME	RESPONSIBILITY	BUDGET
Identify sites and potential partners for ecotourism development within Kiptuget forest	Mapping of sites with potential for (eco)-tourism	Sites identified	Y3Q3	KFS, CFA, Line ministries, NGOs, county Government	500,000
	Identify and document (eco)-tourism players already or potentially able to invest in Kiptuget forest	No. of players identified	Y3Q3	KFS, CFA, Line ministries, NGOs, county Government	500,000
To undertake a feasibility appraisal of identified eco-tourism sites	Conduct a feasibility appraisal of all sites identified	A feasibility report	Y3Q3	KFS, CFA, Line ministries, NGOs, county Government	1,500,000
	Hold a stakeholder consultative workshop to disseminate the results of the feasibility appraisal and develop a way forward	<ul style="list-style-type: none"> <li>• A stakeholder workshop</li> <li>• No. of participants</li> <li>• Report documenting the way forward</li> </ul>	Y3Q3	KFS, CFA, Line ministries, NGOs, county Government	750,000
To identify opportunities for PES and potential PES projects that could be carried out in Kiptuget forest	Conduct a study to identify opportunities for PES and potential PES projects	Report detailing PES opportunities	Y3Q3	KFS, CFA, Line ministries, NGOs, county Government	1,500,000
	Hold a stakeholder consultative workshop to disseminate the results of the feasibility appraisal and develop a way forward	<ul style="list-style-type: none"> <li>• A stakeholder workshop</li> <li>• No. of participants</li> <li>• Report documenting the way forward</li> </ul>	Y3Q3	KFS, CFA, Line ministries, NGOs, county Government	750,000

## 5.6 INFRASTRUCTURE AND HUMAN RESOURCE DEVELOPMENT PROGRAMME

### 5.6.1 Background

In order to achieve the forest management objectives for Kiptuget Forest, a certain level of infrastructure and equipment are required. Roads, buildings and vehicles are all essential to sound management of the forest, but they cannot be constructed, purchased or maintained without considerable financial expenditure.

Maintenance of the 19km road network in Kiptuget has been hampered by the lack of machinery needed to carryout maintenance works e.g. graders. There is also a severe shortage of staff and the existing staff lack good quality housing and services. The communication equipment required for improving the effectiveness of forest management operations such as vehicles, radios, telephones and surveillance equipment is lacking. In addition, the forest administrators lack adequate office space, equipment and computers to enhance administrative operations at the forest station.

### 5.6.2 Management challenges

The main constraint for development and maintenance of sufficient HR and appropriate and adequate infrastructure and infrastructural facilities in Kiptuget is the lack of financial resources.

### 5.6.3 Programme objectives

- To establish and/or maintain the infrastructure and infrastructural facilities within Kiptuget forest.
- To procure appropriate machinery and equipment for forest management activities in Kiptuget forest
- To recruit and maintain competent human resource for forest management activities

### 5.6.4 Management actions

**Table 5-9 Management actions for infrastructure development in Kiptuget forest**

Management objective	Activity	Item	Current status	Indicators	Time frame	Responsibility	Budget
To establish and/or maintain the	Connect the forest station office to the power grid	Power line	None	Power installed	Y1	KFS	150,000

infrastructure And infrastructural facilities within Kiptuget forest.	Establish reliable water supply (water tank /reservoir, piping, pumps etc.) to improve water accessibility at the forest station	Water system and sewerage	None	Water supply /service installed	Y1	KFS, MoE/WNR, local water office	200,000
To procure appropriate machinery and equipment for forest management activities in Kiptuget forest	Procure 3 computers and accessories for communication and records keeping	3 computers and accessories	Nil	No. of computers procured	Y1	KFS	200,000
	Procure a pick up truck and a tractor /trailer for transport	Pickup, tractor/ trailer	Nil	No. of pickups and tractor /trailer	Y1	KFS	8,000,000
	Procure firefighting equipment set for forest fires control	Firefighting equipment	Nil	Set procured	Y1	KFS	50,000,000
	Procure surveillance equipment set		Nil	No. of surveillance sets procured	Y1	KFS	1,000,000

**Table 5-10 Management actions for human resource development in Kiptuget Forest station**

Management Objective	Category	Current No.	Optimum No.	Deficit	Time Frame	Responsibility
To recruit and maintain competent human resource for forest management activities	Forest manager	1	1	Nil	Y1-Y5	KFS
	Assistant forest manager	1	2	1	Y1-Y5	KFS
	Forest guard corporal	1	1	Nil	Y1-Y5	KFS
	Forest rangers	7	11	4	Y1-Y5	KFS
	Clerical officer	Nil	1	1	Y1-Y5	KFS

	Support staff	2	5	3	Y1-Y5	KFS
	Store man	Nil	1	1	Y1-Y5	KFS
	Scouts	Nil	6	6	Y1-Y5	CFA
	Drivers	Nil	3	3	Y1-Y5	KFS
	Driver mates	Nil	3	3	Y1-Y5	KFS
	<b>TOTAL</b>	<b>12</b>	<b>34</b>	<b>22</b>		

## **CHAPTER 6**

### **6 PLAN IMPLEMENTATION**

#### **6.1 CROSSCUTTING ISSUES**

##### **6.1.1 Gender and vulnerable groups**

Gender mainstreaming has already been done in the existing management structures. This trend is expected to continue in the management of all programmes proposed in this plan. Equitable representation of women, men, youth and vulnerable groups will be ensured in every aspect of implementing the PFMP. Community awareness, education and training will be conducted to ensure all the interest groups with the community are integrated within the implementation structures of the PFMP.

##### **6.1.2 HIV/AIDS**

HIV/AIDS is a global concern that has far reaching impacts on individuals and the society at large. The toll of HIV and AIDS on households can be very severe and it is often the poorest sectors of society that are most vulnerable. In many cases, AIDS causes the household to dissolve, as parents die and children are sent to relatives for care and upbringing. In cognizance of these facts and the importance of ensuring the infected and affected persons in the society are not stigmatized, the implementation of Kiptuget PFMP will seek to include all persons living with HIV/AIDS in the community without discrimination. In addition, HIV/AIDS sensitization and education in all capacity building and awareness creation activities during the implementation of all PFMP programmes.

##### **6.1.3 Marginalized groups**

Similarly the process of implementation will ensure that any marginalized groups in the target community participate in all aspects of the programme implementation, that their views and perspectives are actively sought and given due consideration during decision making.

##### **6.1.4 Indigenous knowledge**

Kiptuget forest is part of the home of the Ogiek people. The PFMP implementation programmes will seek to capitalize on the Ogiek community's wealth of traditional ecological knowledge and integrating some of its components with conventional conservation knowledge to maximize benefits to the community without compromising the integrity of the forest ecosystem. This will not only boost the community's sense of inclusion but also serve as a way of passing on the traditional knowledge to the younger generation and other non-forest dwelling communities.

#### **6.2 RESOURCE MOBILIZATION**

##### **6.2.1 Revenues projection**

Kiptuget forest station generates revenue from the sale of various forest products and services. The revenue projection for the sale of various products and services over the next 10 years is as follows;

**Table 6-1 Revenue projection for sale of products and services in Kiptuget forest**

Activity	Revenue projection for 10yr period
Grazing (cattle & sheep)	550,000
Sale of fuel wood	810,000
PELIS	585,000

The revenue projection from harvesting operations over the next 10 years is as follows

**Table 6-2 Revenue projection from harvesting operations in Kiptuget forest**

Species	Activity	Total for 10 year period			Average per year		
		Area (Ha)	Volume (m3)	Revenue (KSh)	Area (Ha)	Volume (m3)	Revenue (KSh)
Cypress	Clear felling	81.1	36,927	113,377,372	8.11	3,693	11,337,737
	Thinning	173.8	166	395,673	17.38	17	39,567
Pine	Clear felling	5.5	2,752	9,482,357	0.55	275	948,236
	Thinning	191.6	162	352,825	19.16	16	35,282
Eucalyptus	Clear felling	18.5	4,999	11,847,357	1.85	500	1,184,736

### 6.2.2 Human resources

The human resource for the implementation of this plan will be drawn from across all the relevant stakeholders as identified during the stakeholder analysis. The key stakeholders will include the community, KFS, KWS, MoEWNR and MoALF. In addition, technical experts will be hired as and when needed to ensure all projects are implemented with the highest level of efficiency and effectiveness.

### 6.2.3 Fundraising

Fundraising to finance the implementation of the plan will be done through various ways. For programmes that do not require substantial funds fundraising will be done through community contribution both in cash and in kind depending on the nature of the project. The community contributions will be supplemented by contribution from forest products/services revenue where possible.

For programmes that require substantial funds, fundraising will be done through proposal writing to donor organizations and development partners for funding. Funds will also be raised by engaging strategic partners that could also make contribution including in form of providing technical expertise.

### 6.2.4 Partnerships and Networking

While setting up the management mechanisms for the plan implementation the steering committee

will seek to establish partnership with relevant state and non-state stakeholders for increased effectiveness in terms of technical delivery. In addition, the committee will seek to establish efficient networking mechanisms among the stakeholders and with other CFAs in the country to improve information sharing and promote the exchange of ideas and experiences.

### 6.3 INSTITUTIONAL ARRANGEMENT FOR PLAN IMPLEMENTATION

#### 6.3.1 Plan implementation structure

Kiptuget PFMP will be implemented using the structure illustrated in figure 6-1.

At the local level, a steering committee will be formed which will be responsible for making all strategic decisions in regards to the implementation of the management programmes proposed in this plan. The committee will be comprised of Forest manager, the CFA's executive committee (chairman, secretary and treasurer) and representatives from the key stakeholder organizations/departments and the community. In addition there will be project implementation committees (PICs) who will oversee the daily running of specific project activities proposed in the plan. The PIC will comprise of one steering committee member, a technical expert from the relevant field (e.g. government technical officers), representative of relevant user group and other members as deemed necessary. Collaboration between the different levels and categories of actors will be encourage for maximum efficiency and effectiveness.

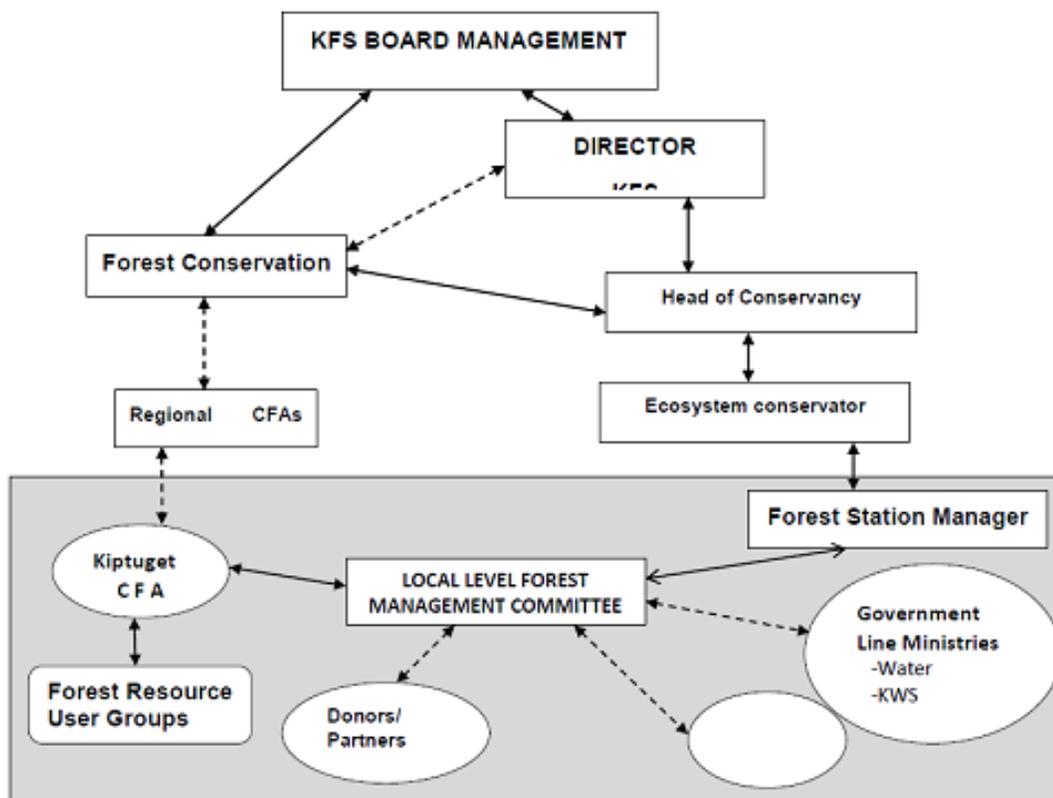


Figure 6-1 Kiptuget PFMP implementation structure

## **CHAPTER 7**

### **7 MONITORING AND EVALUATION**

Sound Monitoring and Evaluation (M&E) system has been recognized as the bases for effective programme/project management. In regards to PFM programmes M&E is crucial in ensuring that the intended outcomes and impacts are achieved within the plan implementation period.

For Kiptuget PFMP, participatory M&E approaches will be employed to keep track of all programme activities, outputs, outcomes and impacts. The M&E system will be tied to the work plans in the implementation mechanisms of management programs of the PFM process and anchored to a supportive multi-stakeholder structure. Prior to the commencement of programmes implementation, the management committees will undergo capacity building on participatory M&E methodologies.

The M&E process in this PFMP would be guided by annual work-plans. In every financial year, a detailed work plan would be elaborated against achievable targets consciously articulated for each program against the original status. Realization of these targets will be monitored over the duration of the work-plan. Measurable indicators envisaged for every management action (see the management action tables) under each program will be evaluated at the end of the year and by extent, the realization of the management objectives. M&E reports detailing the progress of implementation will be prepared by the steering committee annually and be used to inform any changes needed for activities scheduled for the following year.

## **CHAPTER 8**

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## **CHAPTER 9**

### **9 APPENDICES**

#### **APPENDIX I: LIST OF LPT MEMBERS**

<b>Name</b>	<b>ID No.</b>	<b>Phone</b>	<b>Area/group represented</b>
Nancy Chepng'etich Rotich	32518254	0715053454	Women/elderly
David Richu Munyoko	12836325	0727912208	Mulima
Roselyn Chepkoech	23183482	0724274042	Sinendet
Paul Kipkorir Kemoi	11717104	0721999502	Ogiek community (minority)
Harrison Njuguna Wainaina	2336079	0724234524	Kiptuget Forester
Esther Wanjiru Gachau	11408710	0727090848	Mulima
Solomonkipng'etich Sigei	25692151	0721522276	Sinendet
Philip Koech	21176782	0720925510	Big 15
Bernard Tonui	20503568	0723272731	Tabora farm
Samuel Yegon	9253659	0724116351	Co-opted member (technical MoALF)

**APPENDIX II: PHOTOS OF COMMUNITY MEETINGS DURING SOCIOECONOMIC SURVEY AND RESOURCE MAPPING**



**Plate 9-1 Community members at meetings held at various venues in Kiptuget**



**Plate 9-2 community members sketching resource maps**



**Plate 9-3 Community members during the mapping and zonation exercise**

### APPENDIX III: LIST OF PARTICIPANTS IN MAPPING AND ZONATION

NO	NAME	ID. NO.	PHONE: NO	VILLAGE/CBO
1	Harrison Njuguna Wainaina	2336079	0724434524	Kiptuget Forester
2	Julius K. Sawe	9126967	0715219625	CFA Chairman
3	Samwel Yegon	9253659	0724116351	LPT Co-opted Member MoALF
5	Kevin Mwendwa Mugambi	24524361	0710961702	K F S
6	Martin Muiro	22513370	0720499539	K F S
7	Wanguba Bonface	28572721	0716674340	ERMIS Africa
8	Paul Kipkorir Kemoi	11717104	0717826505	LPT
9	Nancy Rotich	32518254	0715053454	LPT
10	Roselyne Chepkoech	23183482	0724274042	LPT
11	Solomon Sigei	25692151	0721522276	LPT
12	Bernard Tanui	20503568	0723272731	LPT
13	Esther Wanjiru Gachau	11408710	0727090848	LPT
14	David Munyoko Richu	12836325	0727912208	LPT
15	Amos K. Cheruiyot	5241903	0722860946	LPT
17	James Sitienei	929842	0707196070	LPT

## APPENDIX IV: LIST OF COMMUNITY GROUPS IN KICOFA

GROUP NAME	STATUS	ACTIVITIES/ROLES	RESPONSIBILITY
Jerusalem women group	Active	Merry –go- round and table banking to members	Help farmers in saving and lending money monthly
Highway women group	Active	Selling and buying	Members benefit their business enhanced through the group
Fanikisha women group	Active	Merry go round and table banking	Borrowing and adding value to each other
Community Forest association Kiptuget SHG	Active	Bee keeping	Help on protecting and conserving forest
Tuiyotich self-help Group	Active	Table banking and merry –go –round	Help youths to save and lend money
Good shepherd S.H group	Active	Table banking	Borrowing and adding of cash to each other
Kiptuget Umoja tree Nursery women S.H group	Active	Tree nursery and table banking	Help women to save and lend money and conserve forest
Pambazuko Youth Group	Active	Create the awareness to the vulnerable in stigma	Mobilize members to be active in the community
Kong'asis	Active	Marketing and storing farm products	Promote togetherness in the farm and farming methods
Magiche	Active	farmers who have come with their merry-go-round boosting school fee	Bring together the community with the NGO, teaching the lead of environments
London youth self-help group	Active\ Registered	Agro-forestry	Protect forest jointly with C.F.A and promote Agro- forestry
Giterere forest Bee\crop farming self-help group	Active\ Registered	Bee keeping and crop farming	Improve the livelihood of members
Nyota men self- help group	Active\ Registered	Agri-Business farming	Promote agribusiness for improved livelihood
Ongeset self-help group	Active\Registered	Merry go round	Welfare issues and improving livelihood
Wendani koige women self-help group	Active\ Registered	Merry go round	Welfare issues and improving livelihood
Mirangi women group	Active\ Registered	Merry go round help the elderly people	Welfare issues and improving livelihood
Tegat Grazing SHG	Active Consortium of users	User group	Promoting sustainable utilization of grazing resources in the forest
Giterere PELIS SHG	Active Consortium of users	User group	Promote sustainable utilization of PELIS areas of forest
Chemichemi firewood	Active Consortium of users	User group	Promote sustainable utilization of firewood resources of the forest
Thayu Women SHG	Active\ Registered	Merry go round	Welfare issues and improving livelihood

<b>Muthingi Women SGH</b>	Active\ Registered	Merry go round	Welfare issues and improving livelihood
<b>Ongegech SHG</b>	Active\ Registered	Merry go round	Welfare issues and improving livelihood

## APPENDIX V: COMMON TREE SPECIES IN KIPTUGET FOREST AND THEIR USES

Table 9-1 Trees/plants found in Kiptuget forest used as herbs or for medicinal purposes

NO	SCIENTIFIC NAME	LOCAL NAME	ENGLISH NAME	USES	AREAS FOUND
1)		Baiwabtarit		Herbs	Everywhere
2)		Chebindowet		Herbs	Everywhere
3)	<i>Acacia lahai</i>	Chebitet	Red thorn	Herb	Riverbank
4)	<i>Pavetta gardeniifolia</i>	Chorwet	Common bride brush	Herbs	Everywhere
5)	<i>Olea europaea</i>	Emitiot	African wild olive	Herbs	Everywhere
6)		Gettegat		Herbs	Everywhere
7)		Kapbukeyet		Herbs	Riverbank
8)	<i>Rhamnus prinoides</i>	Kosisitiet/Mukara kinga	Dogwood	Herbs, Medicine	Everywhere
9)		Kugala		Herbs	Plain land
10)		Kukerwet		Herbs	Everywhere
11)		Kurbanyat		Herbs	Riverbank
12)	<i>Dracaena afromontana</i>	Labatiet	Afromontane dragon tree	Herbs	Everywhere
13)	<i>Syzygium guineense</i>	Lamaiyat	Guinea water berry	Herb	Riverbank
14)		Masomboryet		Herbs	Everywhere
15)		Mekiat		Herbs	Riverbank
16)	<i>Dracaena steudneri</i>	Mithare	Steudner's dragon tree	Medicine	
17)	<i>Olea capensis</i>	Msaita/Mucarage	East African Olive/Elgon olive	Herbs	Everywhere
18)	<i>Rhamnus staddo</i>	Mubura	Buckthorn tree	Medicine	
19)		Muetha		Medicine	
20)	<i>Myrsine africana</i>	Mugaita	Cape Myrtle, African boxwood	Medicine	
21)	<i>Dovyalis abyssinica</i>	Mukambura	Tropical apricot	Medicine	
22)		Mukenia		Medicine	
23)	<i>Dombeya kirkii</i>	Mukeu	River Ndombeya	Medicine	
24)	<i>Ekebergia capensis</i>	Mununga mai	Ekebergia	Medicine	
25)		Murongari		Medicine	
26)		Murunga anake		Herbs	
27)	<i>Carissa spinarum</i>	Mutanda Mbogo	Conkerberry or Bush Plum	Medicine	
28)	<i>Clausena anisata</i>	Mutathi/ Mutati	Clausena	Medicine	
29)	<i>Strychnos henningsii</i>	Muteta	Walking stick, Natal teak	Medicine	
30)	<i>Osyris lanceolata</i>	Muthithi	East African sandalwood	Medicine	
31)	<i>Erythrina abyssinica</i>	Mwemba Inguru	Red-hot- poker Tree	Medicine	
32)	<i>Cratalaria agatiflora</i>	Mwethia	Lion's clawg	Medicine	
33)	<i>Podocarpus falcatus</i>	Saptet/Muthengera	Common Yellowwood	Herbs	Everywhere
34)	<i>Cassia didymobotrya</i>	Senetwo	Popcorn cassia	Herbs	Everywhere

35)	<i>Acacia nilotika</i>	Sertwet	Nile thorn	Herbs	Everywhere
36)	<i>Warbugia ugandensis</i>	Sigowet	Uganda greenheart	Herbs	Everywhere
37)	<i>Dombeya burgessiae</i>	Silibwet	Pink wild pear; Pink dombeya	Herbs	Everywhere
38)		Silyat		Herbs	Everywhere
39)	<i>Ficus thonningii</i>	Simotuet	Strangler fig	Herbs	Riverbank
40)	<i>Myrsine melanophloeos</i>	Sitotwet	Cape Beech tree	Herbs	Everywhere
41)	<i>Urtica urens</i>	Siwot	Stinging Nettle	Herbs	Hill
42)		Siyamelit		Herbs	Plain land
43)	<i>Arundinaria alpine</i>	Tegaat	Mountain bamboo	Herbs	Plantation
44)	<i>Vernonia auriculifera</i>	Tembeg'wet		Herbs	Everywhere
45)	<i>Prunus African</i>	Tenduet /Muiiri	Red stinkwood	Medicine	Everywhere
46)	<i>Dryopteris marginalis</i>	Tilalwet	Marginal shield fern or marginal wood fern	Herbs	Everywhere
47)	<i>Dichrostachys cinerea</i>	Tinet	Sicklebush	Herbs	Everywhere
48)		Turgkwot		Herbs	Hill

**Table 9-2 Exotic tree species in Kiptuget forest**

NO	SCIENTIFIC NAME	LOCAL NAME	ENGLISH NAME	USES
1	<i>Acacia Mearnsii</i>		Wattle tree	Timber, wood
2	<i>Cassuarina equisetifolia</i>		Whistling Pine	Firewood ,
3	<i>Persea Americana</i>		Avocado	Fruit
4	<i>Citrus lemoni</i>		Citrus	Fruit
5	<i>Dovyalis caffra</i>		Kay Apple	Fruit
6	<i>Eriobotrya japonica</i>		Japanese Plum/Loquat	Fruit
7	<i>Cyphamandra betacea</i>	Logoek ap Talai	Tree Tomato	Fruit
8	<i>Cupressus lusitanica</i>	Sepe	Cypress	Building , Wood, Fencing and Timber
9	<i>Grevillea robusta</i>	Cheparus (Kal)	Grevillea	Fencing, wood and Timber
10	<i>Pinus radiate</i>	Silpilisti (Kal)	Black Pine	Timber, Fencing and wood
11	<i>Eucalaptus grandii</i>		Blue Gum Tree	Timber, Fencing and wood
12	<i>Passiflora edulis</i>	Kirindilla, (Kal)	Yellow Gramadilla	Fruit , fencing
13	<i>Passiflora tarminiana</i>		Banana Passion Fruit	Fruit

**Table 9-3 Other plant species in Kiptuget forest and their uses**

NO	SCIENTIFIC NAME	LOCAL NAME	ENGLISH NAME	USES	AREAS FOUND
1)	<i>Polyscias fulva</i>	Aounet	Parasol Tree		Everywhere
2)		Baino		Building	Everywhere
3)	<i>Acacia lahai</i>	Chebitet	Red thorn	Building, herb	Riverbank
4)	<i>Pavetta gardeniifolia</i>	Chorwet	Common bride brush	Traditional herbs	Everywhere
5)	<i>Olea europaea</i>	Emitiot	African wild olive	Herbs, building	Everywhere
6)	<i>Physalis peruviana</i>	Kinathi	Cape goose berrv	Fruit	
7)	<i>Rhamnus prinoides</i>	Kosisitiet/Mukara kinga	Dogwood	Herbs Medicine	Everywhere
8)	<i>Vepris nobilis</i>	Kuriot/Munderendu		Walking stick	Everywhere
9)		Kwanbulu		Building	Everywhere
10)	<i>Dracaena afromontana</i>	Labatiet	Afromontane dragon tree	Herbs	Everywhere
11)	<i>Syzygium auineense</i>	Lamaiyat	Guinea water berrv	Herb, fruit	Riverbank
12)		Macuna			
13)		Magwata ng'ondu			
14)		Mahuithia			
15)		Mangoita		Working sticks	Riverbank
16)	<i>Arundinalia alpine</i>	Mirangi	Mountain bamboo	Firewood, fencing	
17)	<i>Rubus apetalus</i>	Mitare		Fruits	
18)	<i>Dracaena steudneri</i>	Mithare	Steudner's dragon tree	Firewood, medicine	
19)	<i>Cupressus lusitanica</i>	Mithithida	White Cedar	Timber	
20)		Momomiat			Riverbank
21)	<i>Olea capensis</i>	Msaita/Mucarage	East African Olive/Elgon olive	Herb, building Timber, charcoal	Everywhere
22)	<i>Tagetes lucida</i>	Mubangi	Mexican marigold	Repel insects	
23)		Mubarakira		Building	
24)	<i>Rhamnus staddo</i>	Mubura	Buckthorn tree	Medicine	
25)	<i>Pinus patula</i>	Muchinda-nugu	spreading-leaved pine, Mexican weeping pine	Timber firewood	

26)		Muchovuwi		Firewood	
27)		Mugutu			
28)	<i>Pistacia aethiopica</i>	Muhehete			
29)	<i>Prunus africana</i>	Muri	Red stinkwood	Timber\medicine	
30)	<i>Dovyalis abyssinica</i>	Mukambura	Tropical apricot	Fruit, medicine	
31)	<i>Dombeya kirkii</i>	Mukeu	River Ndombeya	Firewood, medicine	
32)		Mukoboki			
33)	<i>Ekebergia capensis</i>	Mununga mai	Ekebergia	Firewood, medicine	
34)		Murangari			
35)		Murongari		Firewood, medicine	
36)	<i>Olea europaea</i>	Mutamaiyo	African Wild Olive	Charcoal	
37)	<i>Carissa spinarum</i>	Mutanda Mbogo	Conkerberry or Bush Plum	Firewood, medicine	
38)	<i>Clausena anisata</i>	Mutathi/ Mutati	Clausena	Firewood, medicine, beehives	
39)	<i>Acacia mearnsii</i>	Muthanduku	Black wattle tree	Building	Everywhere
40)	<i>Buddleia polystachya</i>	Muthimbari			
41)	<i>Antidesma venosum</i>	Muthithio	Tassel berry		
42)		Mutuhia			
43)	<i>Ximenia americana</i>	Mutura	Sour plum		
44)	<i>Myrianthus holstii</i>	Mutuya			
45)	<i>Acacia brevispica Harms</i>	Mwikunya	Acacia		
46)		Mwondwe			
47)	<i>Podocarpus falcatus</i>	Saptet/Muthengera	Common yellowwood	Herbs Timber\firewood	Everywhere
48)	<i>Podocarpus latifolius</i>	Serti	Broad- leaved Yellowwood or Real Yellowwood		Riverbank

49)	<i>Warbugia ugandensis</i>	Sigowet	Uganda greenheart	Herbs, fencing	Everywhere
50)		Silibtet			Everywhere
51)		Siwotab belyot			Along bamboo
52)		Tambarayet			Riverbank
53)	<i>Juniperus procera</i>	Tarakwet/ Mutarakwa	Pencil cedar	Building Poles	Everywhere
54)		Tegeidet			Everywhere
55)	<i>Rhus vulgaris</i>	Thigio		Fruits	

**Table 9-4 Grass species in Kiptuget forest**

NO	SCIENTIFIC NAME	LOCAL NAME	ENGLISH NAME	USES
1	<i>Chloris gayana</i>	Kipcheiyat	Rhodes Grass	
2	<i>Elymus repens</i>	Ngorombit	Couch Grass	
3	<i>Cyperus papyrus</i>	Saoset	Papyrus Reeds	
4		Seretiot		

**Table 9-5 Naturally occurring plants used as traditional vegetables in Kiptuget forest**

NO	SCIENTIFIC NAME	LOCAL NAME	ENGLISH NAME	USES
1	<i>Solanum nigrum</i>	Isoiik	Black Night Shade	Vegetable
2	<i>Dacraodes edulis</i>		African Plum	Vegetable
3	<i>Amaranthus spp.</i>	Cheluanda	Amaranthus	

## APPENDIX V: COMMONLY SIGHTED ANIMAL SPECIES IN KIPTUGET FOREST

**Table 9-6 Commonly sighted mammals in Kiptuget forest**

NO	LOCAL NAME	ENGLISH NAME	SCIENTIFIC NAME
1.	Boinik	Deer	<i>Cervidae spp</i>
2.	Cheretet [Tambit]	Vervet Monkey	<i>Chlorocebus pygerythrus</i>
3.	Cheswerekit/ Njege	Porcupine	<i>Erethizon dorsatum</i>
4.	Chomengowet	Ant bear	<i>Orycteropus afer</i>
5.	Kesogoret	Bush baby	<i>Galaqa crassicaudatus</i>
6.	Kimagetiet	Hyena	<i>Crocuta Africana</i>
7.	Kiplegok/Thungura	Hare	<i>Lepus californicus</i>
8.	Kipsirichet	Rhino	<i>Rhinoceros C.</i>
9.	Lelwot	Fox	<i>Canidae family</i>
10.	Mososiek /Moset	Baboon	<i>Papio Anubis</i>
11.	Mungu	Brown monkey	<i>Ateles hybridus</i>
12.	Nderit	Tree hyrax	<i>Dendrohyrax arboreus</i>
13.	Ngari	Leopard	<i>Panthera pardus</i>
14.	Ngima, Tisiet	Black monkey	<i>Cercopithecus mitis</i>
15.	Nguyo/Koroityet	Black and white Colombus monkey	<i>Colobus guereza</i>
16.	Reresyet	Bat	<i>Chiroptera spp</i>
17.	Rukutes	Bush buck	<i>Traquelaphus scriptus</i>
18.	Soet/Mbogo	Buffalo	<i>Syncarus caffer</i>
19.	Thiyya, Kimuiyot	Dik	<i>Madoqua kirkii</i>
20.	Putiet	Warthog	<i>Phacochoerus africanus</i>
21.	Poinet	Antelope	<i>Antilope cervicapra</i>
22.	Toret/Nguruwe	Giant Forest Hog	<i>Hylochoerus meinertzhagen</i>
23.	Kipungpungit/Kurgungto	Mongoose	<i>Mungos mungo</i>
24.	Kokto	Honey Badger	<i>Melivora capensis</i>
25.		Wild cat	<i>Felius catus</i>
26.	Lelwot	Wild dog	<i>Lycaon pictus</i>
27.	Konokiet	De Brazza monkey	<i>Cercopithecus neglectus</i>
28.	Muthige	African Wild dog	<i>Lycaon pictus</i>
29.	Kiiho/Gituyu	Mongoose	<i>Herpestidae spp.</i>

**Table 9-7 Commonly sighted bird species in Kiptuget forest**

NO	LOCAL NAME	ENGLISH NAME	SCIENTIFIC NAME
1	Chebokibabah	Woodbecker	<i>Subfamilv Picumninae</i>
2	Chesirete	Hawk	<i>Subfamily Accipitrinae</i>
3	Kiptiltiget/Tarweet	Guinea fowl	<i>Guterra pucherani</i>

4	Kongowvot	Crane	<i>Balearica spp.</i>
5	Kipsugunet / [Bundi]	Owl	<i>Bubo africanus</i>
6	Merewet	Turaco	<i>Corythaixoides spp.</i>
7	Mindet	Weavers	<i>Ploceidae</i>
8	Kechevat	Great honey Guide	<i>Indicator</i>
9	Pangang iet	Horn Bill	<i>Bucerotidae family</i>
10	Tii	Pelicans	<i>Pelecanus spp.</i>
11	Cheptuget	Wild doves	<i>Streptopelia roseoqrisea</i>

**Table 9-8 Common insects in Kiptuget forest**

NO	LOCAL NAME	ENGLISH NAME	SCIENTIFIC NAME
1	Segemik	Wild bees	<i>Apis mellifera</i>
2	Kusumek	Stingless bees	<i>Triqona spp.</i>
3	Talamok	Grasshoppers	<i>Macrotona spp.</i>
4	Kongaek	Termites	<i>Termitoidae</i>

**Table 9-9 Commonly sighted reptiles in Kiptuget forest**

NO	LOCAL NAME	ENGLISH NAME	SCIENTIFIC NAME
1		Green mamba	<i>Dendroaspis angusticeps</i>
2		Puff adder	
3	Cheringisiet / Chepenitiet	Common Lizards	<i>Zootoca vivipara</i>
4		Chameleon	<i>Veranus niloticus</i>
5		Geckos	<i>Hemidactylus spp</i>
6		Black mamba	<i>Dendroaspis polylepis</i>