

# Status of Participatory Forest Management Impacts on Poverty for Buyangu Non- PFM area Adjacent Community: Kakamega Forest: Kakamega District.

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## Acronyms

ARPIP	Action Research Into Impact of Participatory Forest Management
CBO	Community Based Organization
DFO	District Forest Officer
EMPFAFORM	Strengthening and Empowering Civil Society for Implementation of Participatory Forest Management in East Africa
KFS	Kenya Forest Service.
GOK	Government of Kenya
ICIPE	International Centre for Insect Physiology and Ecology
ICRAF	International Centre for Research in Agroforestry (World Agroforestry Centre)
KEEP	Kakamega Environmental Education Group
KEFRI	Kenya Forestry Research Institute
KWS	Kenya Wildlife Service
MCCS	Ministry of Culture and social Services
NGO	Non-Governmental Organization
PFM	Participatory Forest Management
VEC	Village Environmental Committee

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## Summary of findings

In Buyangu, the first people to settle there were Abaragoli and Abanyole of Vihiga District and this was in the 19<sup>th</sup> Century. The main settlement of the Abaluya in and around Kakamega forest appears to have occurred in the late 19<sup>th</sup> and the early 20<sup>th</sup> century. The area is densely settled and the demand for forest products is very evident.

The Kakamega forest area adjacent to Buyangu village is under KWS management and communities are not allowed to access any forest products. Despite of this, the community indicated that they still access some forest products illegally. Further more the growing population in Western Province is the biggest obstacle in the conservation of Kakamega Forest and its valuable resources and services

With a growing population the choices become very limited to provide for all and conserve the forest and its resources for generations. This requires introduction of a dynamic management approach like PFM. Though there are social cultural differences like young women not being allowed to sit facing old men which stifles discussions during group exercises, there is potential to introduce this management approach.

During the survey, a large number of people turned up and showed interest to get involved in the management of the forest. There are continuing projects in the area by Abiota, ICIPE and ICRAF. The communities also belong to several CBOs and large associations like the sugar cane growers association.

For the above activities to be undertaken, the policy, legislation and practice of wildlife management in the country has to be changed or special piloting status has to be granted to Kakamega forest area under KWS management.

## Chapter One

### Introduction

**K**akamega forest is the easternmost relic of the Guinea-Congolian equatorial forests that stretched across the Zaire basin from the Atlantic Coast (Mitchell, 2004). It is located at 0° 21'N, 34° 47' and 35° 58' E. The forest is a rainforest with a unique assemblage of species and is famous for its rich bird and insect life. The forest is very wet with an average of 2.08 metres of rain per year. Kakamega forest is one of the sixty important bird areas of Kenya and also a key biodiversity area (Musila, 2006).

Though Kakamega forest was gazetted in 1933 and prior to this, the forest was under trusteeship of the elders, Participatory Forest Management (PFM) which involves the community to participate in the management and utilization of forest resources is not being practiced in the forest area adjacent to Buyangu.

The study on poverty impacts of PFM was carried out in Buyangu to show whether communities may be accessing more benefits in forests where they have no formal access as compared to forests where they do have formal access as in the case of Kakamega forest Isecheno, where PFM has been practiced in varying forms for many years. This was the case because in each forest research site the survey was undertaken in both PFM and Non-PFM sites within the same forest. In Kakamega forest the Non-PFM portion of the forest was Buyangu as it is managed as a Kenya Wildlife Service park where utilization is not allowed legally.

This was part of a national research that is part of a multi-country study (Kenya, Tanzania, Nepal), with technical support from the Overseas Development Institute (ODI), UK. The global Action Research aims to answer three questions:

1. Can PFM contribute to poverty reduction by providing rural people with a sustainable and equitably distributed stream of net benefits greater than those obtained under a non-PFM situation?
2. If yes, how significant are the benefits (in relation to other income-generating activities and sources of livelihood) for different well-being groups? If no, what are the key negative impacts of PFM – and on whom do they fall – and are there ways of minimising, mitigating or reversing these?
3. How do the impacts (both positive and negative) on poverty and equity of different forms of PFM compare? What changes in policy, institutions and legal frameworks have the potential to enhance the contributions of PFM to poverty alleviation?

The survey methodology involved semi-structured interviews with key informants, group exercises (sometimes separately with men and women) and a questionnaire survey which targeted 40 households.

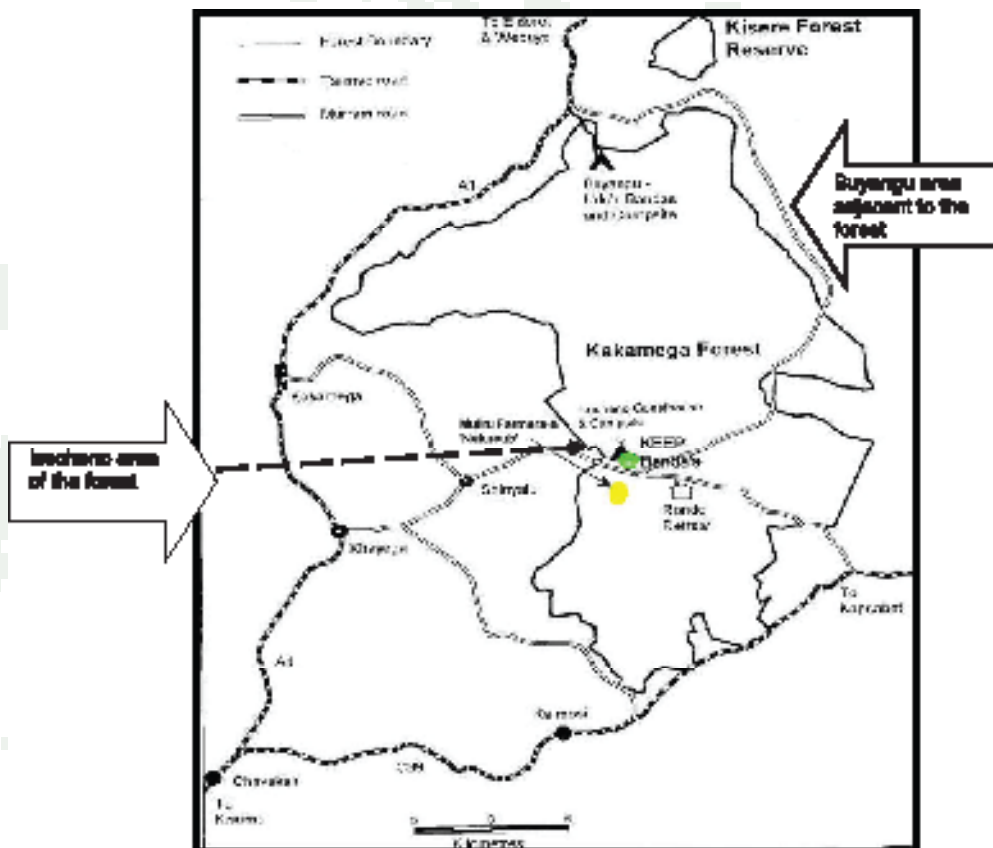
## Chapter Two

## Background - Community Context

## 2.1 Location

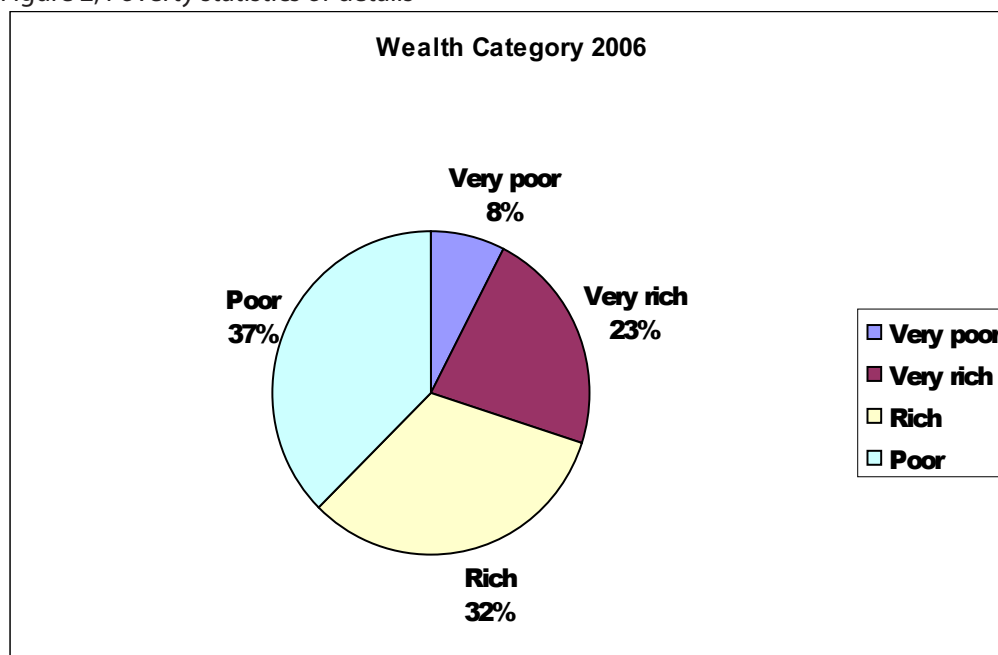
Buyangu Village is found in Kakamega forest which is the easternmost relic of the Guinea-Congolian equatorial forests that stretched across the Zaire basin from the Atlantic Coast (Mitchell, 2004). It is located at 0° 21'N, 34 47' and 43 58'E. (Figure 1)

Figure 1: map of Kakamega forest



The forest is a rainforest with a unique assemblage of species and is famous for its rich bird and insect life. The forest is very wet with an average of 2.08metres of rain per year. Rainfall is heaviest in April and May (long rains) with slightly drier June and second peak roughly in August to September (short rain). January and February are the driest months. Temperature is fairly constant throughout the year, with mean daily minimums of about 11°C and means daily maximums of about 26°C. Kakamega forest is one of the sixty important bird areas of Kenya and also a key biodiversity area (Musila, 2006).

Figure 2; Poverty statistics or details



As by the year 2006, we can see that the community has a big number of poor people (37%) and also a similar percentage (32%) of rich people (figure 2).

## 2.2 History and demography

In the Non-PFM study site of Buyangu, the first people to settle there were Abaragoli and Abanyole of Vihiga District this occurred in the 19<sup>th</sup> Century. The main settlement of the Abaluya in and around Kakamega forest appears to have occurred in the late 19<sup>th</sup> and the early 20<sup>th</sup> century.

The community had few old men majority of who had worked away from the village for a long time. This limited their ability to remember past historical events.(Table 1)

*Table 1. Profile of events as perceived by Buyangu Community*

Year	Activity	Implication
1943	<ul style="list-style-type: none"> <li>Mzee Mtoa (Machanja) was the tax collector for the county council (Konzolo)</li> <li>Community members who had no money to pay for tax used to hide in the forests</li> </ul>	Those unable to pay tax were used to clear parts of the forest for settling of the people.
1945	<ul style="list-style-type: none"> <li>Those people who were living in the forest were evicted</li> <li>The government drew up a boundary between the people and the forest area.</li> <li>The residents were grazing animals in the forest and also getting firewood, grass, natural honey, hunting for game meat, herbs, wild fruits and even poles for building. There was also timber cutting in the forest. They also removed mashindu for basket weaving.</li> </ul>	Exploitation of fuel wood, grass, herbs, wild fruits and poles had a negative impact on the forest cover.



1950	<ul style="list-style-type: none"> <li>The residents had individually owned small private forests, which the county council came after and started asking for taxes.</li> <li>The residents developed an agreement with the county council and were exempted from paying tax</li> </ul>	The agreements done then could be used to form a basis for the ones to be signed under PFM
1958	<ul style="list-style-type: none"> <li>KFS took over forest guarding</li> <li>Locals were paying them 30 cents per cow to graze their animals in the forest</li> <li>They were also paying Ksh.70 per tree for timber. Ksh.20 per acre was charged for the land they were given adjacent to the forest. They were given land adjacent to the forest to control wild animals from villages.</li> <li>-Illegal grazing in the forest resulted in fining: one hen Ksh.7, Goat Ksh.15, Sheep Ksh.15. the fine was paid to the leader (Omami). Those unable were sentenced to casual labour.</li> </ul>	<p>Those who had the money were the only ones involved in these activities</p> <p>A system of punishing offender that could be used in the PFM management guidelines and agreements.</p>
1964	<ul style="list-style-type: none"> <li>KFS established their offices in Buyangu</li> <li>Beacons for boundary marking were put in place</li> <li>FD started controlling the animals that entered the forest for grazing and only those who had paid were allowed to graze.</li> </ul>	Lack of thatching grass led to poor housing facilities for the locals. Beacons took part of the community land in the forest.
1972	<ul style="list-style-type: none"> <li>KFS and the then Minister of Environment Hon Omamo planted trees (Pinus) around the boundary because the residents claimed that the area adjacent to the forest belonged to them to mark the boundary.</li> <li>The FD and the county council gave the community land to build a school.</li> </ul>	- Lack of grazing land led to scarcity of milk and sale of some of the animals.
1984	<ul style="list-style-type: none"> <li>KWS got involved in Kakamega forest management. They came with their own rules that refused the residents entering the forest.</li> <li>KWS built for them cattle dip. In the dip they were paying Ksh.5 per cow those who could not afford the fee lost many cattle.</li> <li>Many people became houseless because they could not get raw materials for building houses.</li> <li>KWS was arresting people found grazing in the forest and then took them to court where they had to sell their animals to pay the fines.</li> <li>Wild animals went to the villages and destroyed shambas. They were not compensated by KWS for the damages.</li> </ul>	Poverty became high in the area, as the residents had no place to graze their animals resulting in animals dying and being sold. Many animals were lost. Communities could not get firewood, timber and even grass to thatch their houses. Lack of food due to destruction from the wild animal.
1986	<ul style="list-style-type: none"> <li>The community planted trees in their farms and due to the limited space; they ended up having few cattle. In these small shambas, they planted trees, maize, napier grass, sugar cane, vegetables, bananas, beans. e.t.c</li> </ul>	Mixed farming started
1988	<ul style="list-style-type: none"> <li>Groups like maendeleo ya wanawake, youth groups were formed. They planted seedlings in nurseries for sale, built fishponds, beekeeping, poultry farming, tailoring and all these provided income for the community.</li> <li>These groups came about through the Department of social services in the Ministry of Home Affairs.</li> <li>Population increased and this led to congestion in the small pieces of land</li> </ul>	Building of social capital

2000 to Date	<ul style="list-style-type: none"> <li>• NGOs came in the area and these were ICRAF, BIOTA, KEEP, ICIPE, and KWS among others.</li> <li>• ICRAF came to do research on soil and trees, which created employment for the youths in the area.</li> <li>• BIOTA is involved in several issues like: beekeeping, soil, tree planting, insects, community research (people adjacent to the forest and effects of their farming on the forest). The only benefit the community gets from them is employment, they do not involve the community as a whole in their activities and also they do not bring any feedback to the community.</li> <li>• KEEP plants trees for sale to the community and create awareness on the importance of forest conservation</li> <li>• ICIPE trains community on bee keeping</li> <li>• KWS provide employment like casual work to the community.</li> <li>• KWS gave land where a primary school was build</li> </ul>	Community get employment
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The table 1 and 2 community timeline compares well with administrative time line according to Mitchell (2004).

Table 2. Administrative history (1908 to 1998) of Kakamega forest

1908- 1910	Approximate date of first boundary of Kakamega Forest.
1909	Kakamega gazetted as a government post
1911	Forestry regulations were replaced by the 'Forest Ordinance, 1911'
1912-1913	Forest boundary re-established
1913	First official survey of the area by the Survey of Kenya, printed as a map in 1916, marking the limit of the recently demarcated forest boundary
Early 1900	Outbreak of rinderpest during the early years of the century devastating cattle herds until 1913
1914-1918	World war 1: thousands of men taken from the north Kavirondo (Kakamega) for the Carrier Corps
1920	Kakamega gazetted as a township
1927	Kakamega town became district headquarters
1929-1932	North Kavirondo forests (Kakamega, Malava, Kisere, and Bunyala ) surveyed and new forest boundaries established
1931	Gold discovered in Kakamega area, gold rush begins declining gradually after 1936
1931	FD took control of the forest management on behalf of the North Kavirondo Local Native Council
1931	First forester Mr. Holyoke, posted to Kakamega
1932	First edition of the new style survey and map
1933	Kakamega Forest gazetted as Trust Forest under Proclamation no.14; main forest block:23785 ha, Kisere;471ha
1939-1945	War diverts focus of logging to diverse timber types and large quantities
1941	Forest Ordinance revised to provide for the creation of nature reserves within forests reserves
1941- 1960's	Enrichment planting e.g. Kisaina, Alossi and Malava
1959/1964	Continuity of the customary rights of the people over the forest reinforced by special rules issued allowing Kakamega residents the right to wide-ranging use of the forest
1963	Independence of Kenya; appointment of first African forester posted to Kakamega
1964	Declared as Central Forest: 23796 ha
1963-67	1 <sup>st</sup> forest inventory, collaboration of Canadian and Kenyan Governments; total area of Kakamega, Kisere, Malava and Bunyala: 25588 ha. 63% covered by indigenous forest and 8.1% plantation
1967	Yala, Isecheno and Kisere Nature Reserves officially set aside for the preservation of flora and fauna
1971-1974	Land outside the forest first demarcated and title deeds given out for private land
1972-1976	1180 ha (8%) of the forest lost

1976-1980	780 ha (6%) of the forest lost
1974	Second inventory (Kakamega and Kisere)
1975	Kakamega forest divided up in system of 74 coupes for reorganized wave of logging
1978	3 <sup>rd</sup> forest inventory(Kakamega)
1981	Excision of Isukha sugar factory
1983	Excision of 25 ha for Kaptik Secondary school
1984	Excision of 26 ha at Isecheno used to resettle 10 families displaced for expansion of Mukumu Girls' school
1984	Presidential directive banned conversion of indigenous forest to plantation
1986	Buyangu and Kisere excised to become National Reserve under KWS management: Buyangu 3984 ha, Kisere 471 ha; excision of 13 ha for Buyangu primary
1986-1987	Shamba system officially discontinued and rules tightened on grazing and collection in the forest
1989-1989	446 ha of forest margin cut for the Nyayo tea zone project; excision of 133 ha of forests issued for resettlement at Kibiri
1988	Presidential directive banned cutting of indigenous forest trees
1989/1990	Villages e.g. Kisaina, evicted from the forest
Early 1990's	KIFCON project and research and 4 <sup>th</sup> forest inventory
1990	Excision of 9 ha for Kaptio Primary school
Ca. 1990	Kakamega Forest Reserve; 19649 ha (presumably excluding the National reserves)
1991	Excision of 18 ha for resettling people displaced by Vihiga town
1991	Excision of 35 ha of forest issued for resettlement at Kibiri
1992	Vihiga district created encompassing Kakamega Forest south of the Yala river
1998	Excisions of 7 ha for Kisaina primary school and of 40 ha for Kakamega show ground.

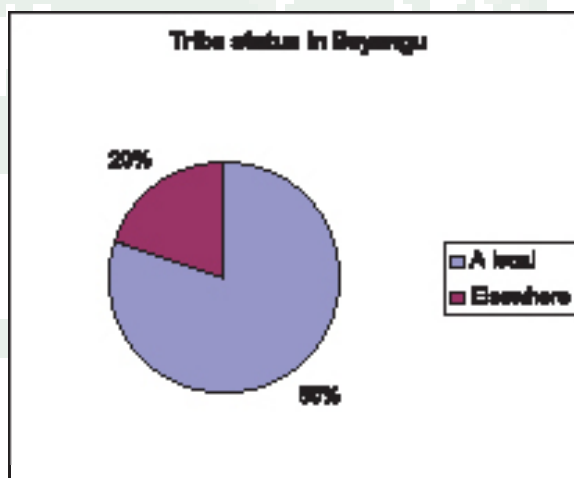
Table 3. Community involvement in the management of the Forest

Period	• Activity	• Remarks
1970-1980s	<ul style="list-style-type: none"> <li>Collecting thatching grass</li> <li>Allowed to graze in the forest</li> <li>Fetching water and firewood from the forest</li> <li>Harvesting medicinal herbs</li> <li>Collecting indigenous vegetables</li> <li>Gathering wild fruits</li> <li>Allowed to cultivate in the forest</li> <li>Harvesting twines (ropes) from the climbers</li> <li>Collecting clay for making pots and plastering houses</li> <li>Free passage</li> <li>Timber harvesting</li> </ul>	<ul style="list-style-type: none"> <li>Each individual had a house</li> <li>Individuals were healthy because they had a source of income</li> <li>Children were healthy because cooking food was easy</li> <li>Easy acquisition of medicine for treatment for the community and their livestock</li> <li>The community was not having problems during poor crop harvest and drought as wild foods were available</li> <li>They had enough food because they could cultivate the forest, they had no theft cases, children went to schools uninterrupted, cultivation was cheap because land was fertile</li> <li>Twines (ropes) were used for house construction, ropes and baskets for sale</li> <li>The clay was a source of money through pots selling, jikos and house construction</li> <li>-Communication was easy because of short cuts through the forest</li> <li>Timber harvesting brought employment in saw mills, cheap timber for construction and off cuts timber pieces were cheap also</li> </ul>

1980s present date.	<ul style="list-style-type: none"> <li>• No removal of thatching grass</li> <li>• Banning grazing in the forest</li> <li>• Banning of:               <ul style="list-style-type: none"> <li>◦ Removal of medicinal herbs from the forest</li> <li>◦ Harvesting wild vegetables and wild fruit</li> <li>◦ Cultivation in the forest</li> <li>◦ Timber harvesting</li> <li>◦ Harvesting of twines</li> <li>◦ Collecting of clay</li> </ul> </li> <li>• Free passage through the forest not certain as there are cases of community members being harassed</li> </ul>	<ul style="list-style-type: none"> <li>• Houses are in bad conditions as there no materials for repairs</li> <li>• The community is forced to keep few cattle because of small pieces of land resulting in less income</li> <li>• Poverty has increased</li> <li>• Women are being harassed by their husbands because of half cooked food and delay in preparation of meals, no firewood for funeral arrangements, people with no woodlots are required to buy firewood which is expensive</li> <li>• The community is forced to go to both private and public hospitals, which are expensive, deaths have increased due to lack of medicine, and diseases have also increased.</li> <li>• The community are not healthy because they have no money to buy vegetables and those fruits that cannot be found outside the forest</li> <li>• Hunger increased because they could not access wild fruits</li> <li>• The community is now forced to buy nails, hoes and thatching grass which is an extra expense to them</li> <li>• They are forced to buy pots, jikos and clay for houses which is expensive and they are also forced to use expensive materials for construction</li> <li>• They have no free passage as short cuts so they now have to use vehicle which is expensive for them</li> <li>• Lack of employment because the timber mills were closed</li> <li>• Expensive timber, they have no off cuts and all these led to an increase in poverty.</li> </ul>
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The historical trend shows that the area under forest has been reducing over time but the community demand has been increasing. Also there has been low migration of other communities to the areas as shown in figure 3. The Luhya remain the dominant community.

Figure 3: The Buyangu population composition



## 2.3 Land-use and Tenure regimes

Land is a free hold with title deeds. Title deeds are held by grandfathers as land sub division to facilitate issuance of title deeds to married children hardly occurs because the process is expensive. Land parcels are mostly below 2 acres with the majority being ½ acre. Landless people are very few. Few people from other communities have bought land in the village. Land is passed over from father to sons. Girls cannot inherit land but elderly mothers can hold in trust for their children.

### Tree tenure.

All trees planted on farmland belong to the landowner. Women can own trees where they are the owners of the land. Even under such circumstances they mostly hire men to plant the trees. Women can plant trees but cannot harvest without permission from land owner (family head) even if it is for fuel wood. Women cannot harvest trees on the farm. Due to small parcels of land, tree planting is done on boundaries with only a few who have woodlots

#### Harvesting of forest products

- Withies for construction are obtained from forest because their poaching is easy
- Poles for building are bought from farmlands @ 30-50 shillings each
- Men have more access to trees than women as they can poach and move the products very far.
- Other products harvested from the forest illegally include:
  - o Grass for thatching roofs and also for livestock,
  - o Herbs such as the forest vine, Mukobera, the roots of which are powdered and sold as a herbal appetizer
  - o Wild honey harvested from logs and crevices on old trees,
  - o Bee keeping through modern hives,
  - o Fish from Isukha river
  - o Butterfly farming (trapping)
  - o A few fitos (withies) for construction
  - o Collection of firewood.
- Charcoal burning from on-farm trees is restricted and communities are arrested whenever they are found carrying it and also the roots of *Mondia whytei* (Mukobera). It is even more difficult because the office issuing permits is located far away
- Harvesting of Mukobera on farmlands is restricted because it has to be uprooted to provide the medicinal parts which are the roots.
- Most forest products are harvested for domestic use
- Technology like use of power saws have made it easy for women to access forest products like timber more easily
- Access rights have been greatly reduced since KWS moved into the forest in 1988. Prices of tree products have gone up and are now obtained from private farms.
- Access to herbs that are to be obtained from very old trees is restricted.
- Women are the most affected by the restricted forest access because they lose firewood and thatching grass.

## 2.4 Forest policies and management

In Buyangu, the community feels that they are being harassed by the KWS when it comes to the extraction of forest products. The community is still obtaining illegal products from the forest even with the KWS being strict on the entry in the forest.

The following figures show the number of fines paid and their frequency at Buyangu. The highest fine paid was Ksh 3000 whereas the highest number of times an individual had been fined was ten times. Most fines paid by respondents was Ksh 500 (figure 3 and 4) below.

Figure 3: number of times members fined for collecting forest product

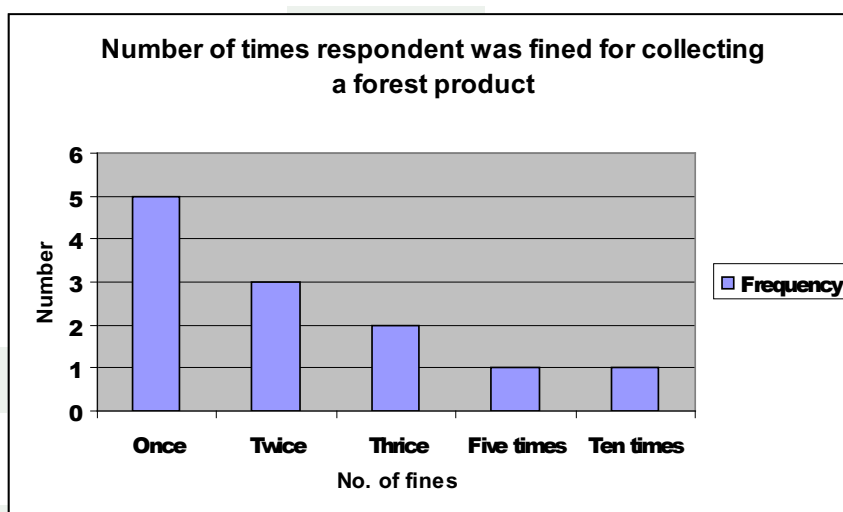
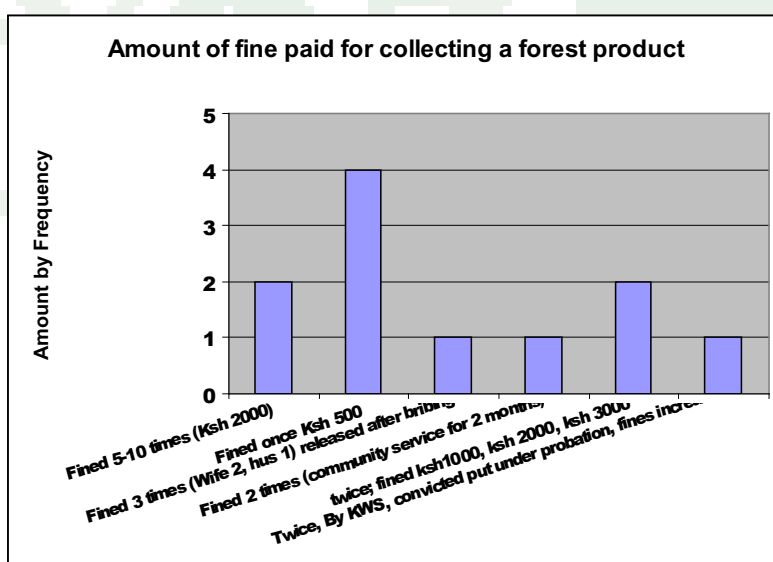


Figure 4: Amount paid for collecting a forest product



In Buyangu, KWS has the highest right over the forest flora and fauna and determines who enters the forest and uses the forest products though there is no entry into the forest by the community members.





## Chapter Three

### Forest management in Buyangu.

The management of Buyangu forest is under KWS. The community does not have any memorandum of understanding with KWS on the management of the forest. The community has even been denied access for firewood: whereas a household is allowed to collect one head load for 45 shillings a month in nearby Isecheno this is not allowed in Buyangu. This has affected women most as they travel far to zones of the forest that are not managed by KWS.

#### 3.1 Motivation for initiation of PFM in future

The community in Buyangu want more access to the forest products; they feel that if PFM is initiated in the area, they will be able to acquire some products. They believe that because they have no agreement with KWS, they are missing out on benefits from the forest. There are also on-going activities like tourist bandas and tour guiding which the community can be enjoined to start benefiting within future PFM arrangements.

#### 3.2 Ownership/access rights over the resource

The community has no access rights and they cannot access forest products. The forest is owned by the state through KWS which advocates total protection with community being excluded.



Wild mushrooms being dried under the sun



### 3.3 Income-generating potential and costs in Buyangu

Buyangu area has a high potential if IGAs are introduced and supported. This is because the area already has donor support through many projects by ICIPE and ICRAF. These IGAs include:

- Agro forestry involving selling of poles and seedlings.
- Tree, seed and nursery management.

The tourists' related activities could also be expanded to include the communities or new ones started by the communities within the forest. According to the community members, the potential value of the above IGAs is high and would improve their livelihood. They are particularly interested in Ecotourism and Tree seed and nursery management, mushroom farming and bee keeping. The IGAs in Isecheno are not being practiced by the communities in Buyangu. The camp sites in Buyangu are managed by KWS.



## Chapter Four.

### Livelihood capitals at community level

#### 4.1 Economic capital

The community confessed that they were not benefiting from the forest in any way. Some however said that they were still acquiring some products illegally. Their main livelihood activity is agriculture and dairy farming because the area receives adequate rainfall all through the year.(Table 4)

The community is not involved in any income generating activities related to the forest like the Isecheno community who are participating in butterfly, beekeeping and Mukobera farming.

Table 4: Calendar of livelihood activities.

Activity	Month	Gender involved	Season	Income
<ul style="list-style-type: none"> <li>Land preparation</li> <li>Planting maize, beans and vegetables for those with land near riverside areas</li> </ul>	January to February	Male and Female	Dry	Sale of last year's maize harvest
<ul style="list-style-type: none"> <li>Land preparation and continued weeding of riverside areas</li> </ul>	February	Male and Female	Dry	
<ul style="list-style-type: none"> <li>Planting of maize and beans</li> </ul>	March	Male and Female	Wet	
<ul style="list-style-type: none"> <li>Weeding of maize and planting of sugar cane</li> </ul>	April	Youth and the women	Wet	Casual labour
<ul style="list-style-type: none"> <li>2nd weeding of maize</li> <li>Harvesting of maize and beans from the riverside areas</li> </ul>	May	Mainly women and youth.	Wet	Casual labour
<ul style="list-style-type: none"> <li>Harvesting of beans planted in non riverside areas</li> </ul>	June	Women and youth , a few casual men.	Moderate Rainfall	Casual labour
<ul style="list-style-type: none"> <li>Harvesting of green maize</li> </ul>	July	Youth	Moderate rainfall	Sale green maize
<ul style="list-style-type: none"> <li>2nd season beans planting</li> </ul>	August	A few men, women and youth.	low rainfall	Casual labour Sale of beans and green maize
<ul style="list-style-type: none"> <li>Harvesting dry maize</li> </ul>	September	Women, youth and a few men.	Low rainfall	Casual labour from harvesting of dry maize Cash from sale of the dry maize

<ul style="list-style-type: none"> <li>-Weeding of second season beans and vegetables</li> <li>-Preservation and de husking of the dry maize</li> </ul>	October	Women and youth	Low rainfall	Sale of maize and beans
<ul style="list-style-type: none"> <li>• Harvesting of 2nd season beans</li> </ul>	November	Women and youth	Dry	Sale of maize and beans Boda-boda business
<ul style="list-style-type: none"> <li>• -Circumcision/ initiation</li> <li>• -Land preparation</li> </ul>	December	Communal	Dry	Sell of beans and vegetables.

## 4.2 Physical capital

Most housing is made of mud walls and the roof is grass thatched. Other houses have mud walls with iron sheets roof. Permanent houses are also found within the community though few. There are pit latrines with piped water found in the homesteads of the rich and the prominent; most of the villagers still go to the river to fetch water. Electricity is non-existent in Buyangu with the use of generators and solar energy among the affluent.

Road network is good connecting Buyangu to the main tarmacked road to Kakamega. Educational institutions include one primary school and no secondary school in the area.

Transport to the area is through bicycles known by the locals as Boda boda.

## 4.3 Human capital

### Education

According to the survey done by ARPIP, the people of Buyangu community are educated because those who are illiterate constitute only 13% while those who have reached upper primary are 44% as shown in the table 5 below:

Table 5: Education status in Buyangu area.

Education level (N=40)	Percentage (%)
Illiterate	13
Upper primary	44
Secondary	24
College/ university	3
Lower Primary	16
Total (%)	100

### Food Security status

Members of the Buyangu community which is 47% of the members lacked enough food for the household to be able to eat three meals per day (breakfast, lunch and supper) for more than three weeks. 30% of the same community said that they had never lacked food, 15% lacks food for one week and 8% for 2- 3 weeks.

In Buyangu, 48% of the respondents said that food shortages over the years had increased, many of them (29%) gave a reduction in land size as the major reason for

food shortage while 22% said it was due to reduced income while 7% accused drought, 3% more children, 10% poor soils, 3% game damage, 3% reduced food crop farming and 3% illness.

### Health status

The well being status of the community members in Buyangu had deteriorated over the years according to 47% of the respondents. There was 35% who felt that their status had become better, 3% was much better, 5% was much worse and 10% indicated no change.

## 4.4 Social and Political capital

The community social and political capital is not low as such. Buyangu village has projects, which have been implemented by some NGOs like ICIPE and ICRAF. They have activities, which aim to alleviate poverty around the area by providing casual labour. Members of the community are on the receiving end and do not participate in the decision-making.

## 4.5 Natural capital

The area around Buyangu has had KWS managing the forest for a long time and so they cannot have any access to the forest. 62% of the community members here said the forest was less important to their livelihood now than in 1995 while 23% thought that the forest was more important and the rest (15%) indicated there was no change in the forest importance. On the forest condition, 97% thought the forest condition had changed for the better since 1995, while 3% said there was no change. The reason given for the change was reduction of the forest use.

## Chapter Five

### Livelihood capitals at the household level

There is no PFM going on in the area but creation of nature reserves under KWS had impacts on all social classes as shown in table 6 and table 7.

Table 6. Benefits as a result of nature reserve creation by KWS

Action	Socio-Economic Impact
Employment as casual laborers	Improved financial capital
Stoppage of grazing in the forest	Promotion of Zero grazing Increased milk production
Cattle Dip construction	Healthy livestock
Primary school opening	More children going to school
Dispensary	Healthy community
Piped water promise	No impact

Table 7. Negative Impacts of nature reserve creation by KWS.

Action	Socio-economic impact
Reduction of large herds of cattle and introduction of dairy cattle which were few	Individual became poor
Increased game damage	Reduced harvest and poor households
Reduced access to clean forest water	Increased incidences of water borne diseases
Restricted access through the forests	Long time spend going round the forest
Arrests by KWS	Heavy fines, jail terms commuted to serve at public places. Reduced family resources
Farms gazetted <sup>1</sup> as nature reserve	Reduced farm area.
Buyangu glade converted to a forest	Increased malaria attacks

#### Suggested solutions.

1. Government officers to sensitize community especially on rules pertaining to nature reserves management
2. Formation of groups to allow accessibility to forest resources within and outside the forest.
3. Promotion of good relationship between community members and KWS staff
4. Strengthening of the existing groups

#### 5.1 Economic capital

The economic capitals at Buyangu are based on livestock farming and crop farming. The crops planted in Buyangu are maize, beans and sugar cane though the sugar cane is mainly a cash crop.

The household categorization is given below:

#### Muhinda (A)

- Owns more than 6 acres of land
- Has 4 grade cows and has planted nappier grass in his homestead
- Owns 2 ploughing bulls
- Educates his children up to university level
- His children work in the big towns
- Has sugar cane of at least 3-4 acres
- Has a permanent house with at least 4 rooms
- Has sofa sets
- Harvests at least 10 bags of maize
- Has more than 10 layers that is poultry
- Dresses expensively and can afford to exchange clothes each day
- Has expensive beddings
- Feeds on a balanced diet
- Owns a coloured Television
- Always has expensive shoes
- Owns a bicycle
- Buys plots in towns (Kambi ya Mwanza, Kakamega, Malava) and builds rental houses
- Hires vehicles to go to hospital and mainly private hospitals

#### Mwinyalilwa (B)

- Has land of at least 3 acres
- 1-2 grade cows and has about ¼ acre of nappier grass in his farm
- Has at least 1 bull for ploughing
- Educates his children until form 4
- Semi permanent house of three rooms
- Harvests at least 4 bags of maize
- Has 1½ acre of sugar cane
- Has 5-8 local breed chicken
- Dresses well in a moderate manner
- Black and white TV
- Owns at least one pair of shoes which are mainly rubber shoes
- Owns a bicycle
- Has rental farms for other people to lease for cultivating
- Goes to the public hospital (Malava, Kakamega, Shikula or Kambiri)

#### Mutakha (C)

- Owns ¼ an acre of land
- Has 1 sheep or hen
- Has a grass thatched house but with no furniture
- Can harvest up to ½ a bag of maize
- Has no education hence illiterate
- His children are employed by the rich of the community
- Has one pair of clothes which he washes and wears
- Wears Akala shoes which are shoes that have been made from old car tires by

- local cobblers
- Has scarcity of food
- Can't go for treatment and mainly relies on herbs as means of treatment

N.B. We could not get a category lower than Mutakha  
Community members who felt that their household well being had improved cited the following reasons for the change (table 8).

Table 8: Reasons for positive change in households well being since 1995

Reason positive change	(%)
Business	7.5
Few children to feed	5
Financial stability	22.5
Extra income from farm renting	2.5
Total (%)	37.5%

For those who saw a negative change, they gave the reasons in table 9 below

Table 9: Reasons for negative change in households well being since 1995

Reason negative change	(%)
Decline in resources	35
Theft	2.5
More children	2.5
Spent money on treatment	12.5
Total (%)	52.5%

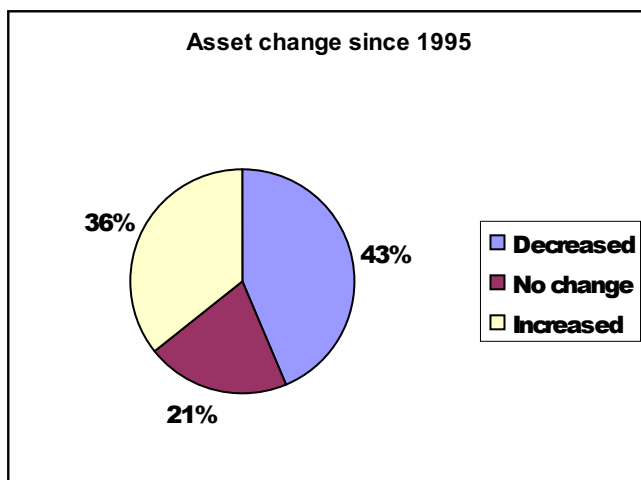
The community generally felt that their well being had deteriorated.

## 5.2 Physical Capital<sup>1</sup>

The households in Buyangu have mainly houses with iron roofs although there are some of them who still have the grass-thatched houses. Most of the households have dug up wells or bore holes in the compound that enables them to get water. The road conditions are bad because during the rainy season, it is sometimes impossible to pass using vehicles but the road network is good (figure 5) below.

<sup>1</sup> Take care throughout all of section 5 to note impact at the household level and not the community level

Figure 5: Asset change since 1995



There has been a decrease in the community assets though a considerable number of the respondents also indicated an increase in their assets.

### 5.3 Human capital

Food insecurity has increased around the area because we can see that 47% of the respondents have lacked enough food for more than three weeks as shown figure 6 below.

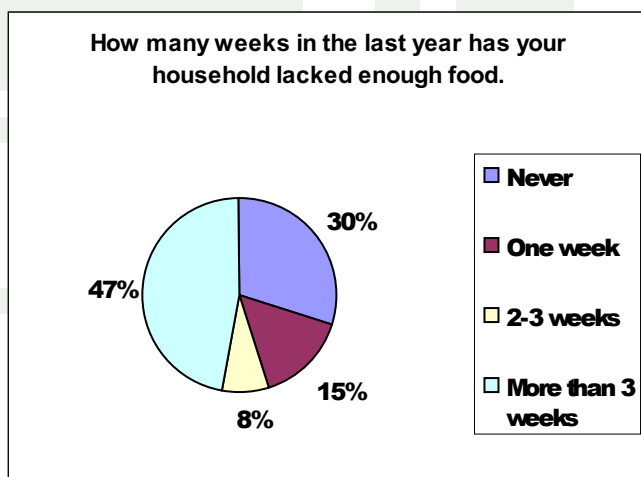
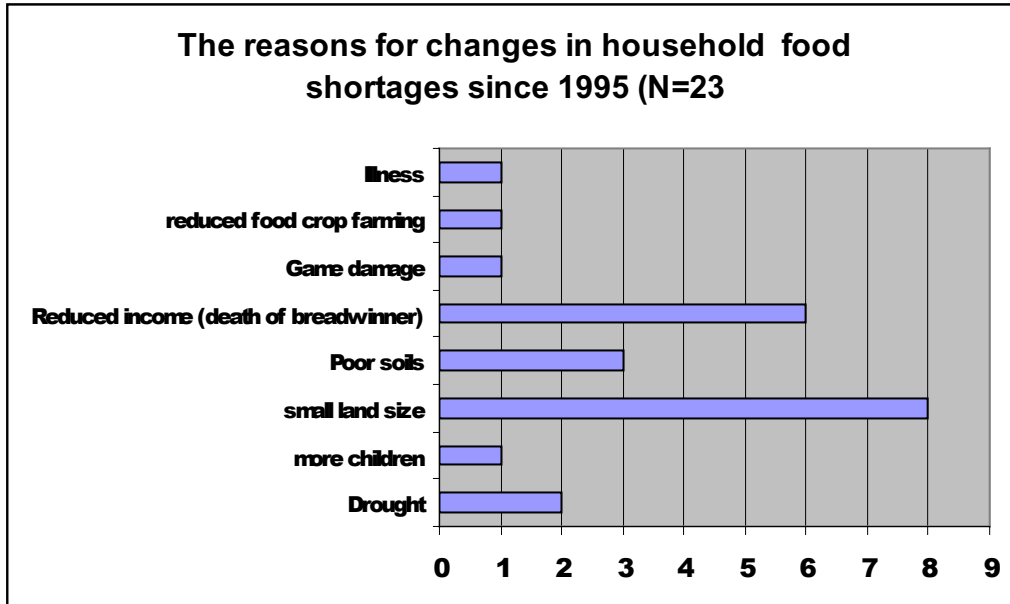


Figure 6: No of times household lacked food

The cause of food insecurity around the area is mainly due to a decrease in land size hence the community does not have enough land for settlement and farming. Other factors include more children, poor soils and others as indicated figure 7 below.



Figure 7: Reasons for change in household food since 1995



## 5.4 Political capital

Community members attend more meetings than before although they are not necessarily PFM of forest related meetings. (75% confirmed this fact.) More males attend meetings than females because of anticipated benefits especially by men. Women were also mostly involved in household chores so they could not find time to attend some of the meetings shown in figure 8 below.

Of those who attend 75% speak in meetings while 25% have never spoken in meetings.(figure 9)

Figure 8; Attendance of meetings by gender

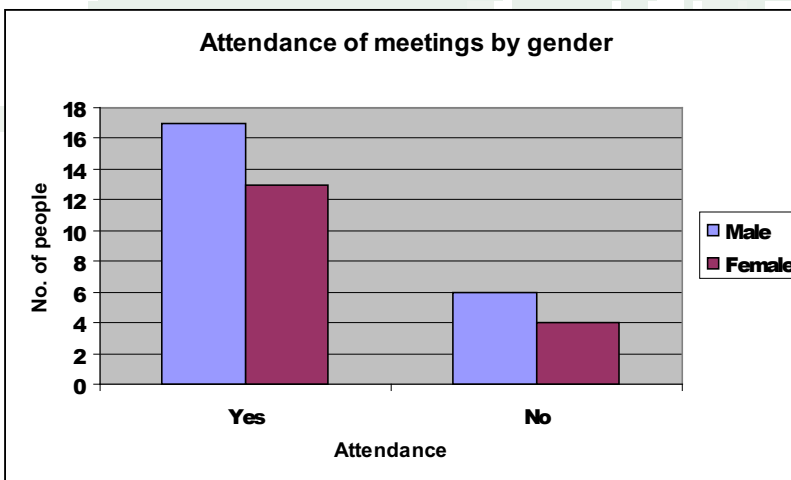
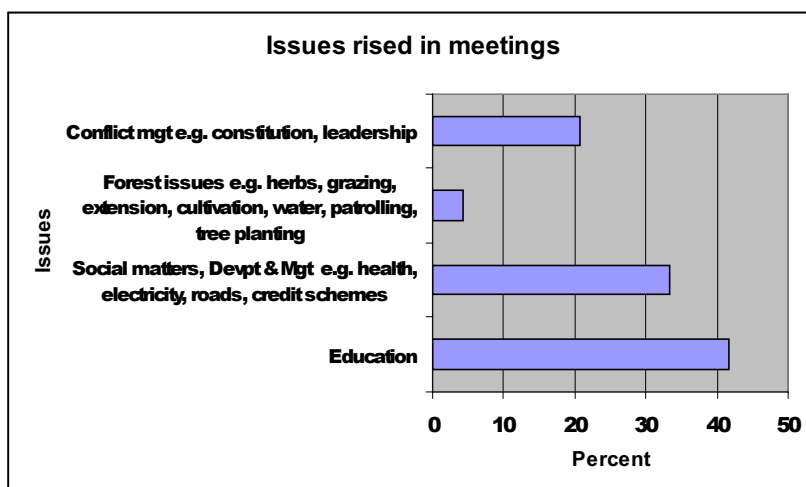


Figure 9; Issues raised in meetings



Many issues were raised by those who attended meetings with 41.6% talking about education and social matters and development of infrastructure coming second at 33.3 %. Conflict and leadership came third at 20.8%. Buyangu is a sugarcane growing zone with low literacy levels with majority of respondents having attained primary school. This was thus the focus of the society in most of the meetings.

## 5.5 Social Capital

The social networks that are within Buyangu are mainly CBOs which address specific project activities like those by ICIPE, and ICRAF. The sugarcane farmers belong to the Sugar cane out growers association. This is why the community is able to rely on its own saving during times of emergencies (table 10)

Table 10. Source of money for emergency costs

Source of money-emergency	Buyangu
Own saving	47.5
Casual labour	0
Borrow	50.0
Remittance	2.5
Charity/donations	0
Total (%)	100.0

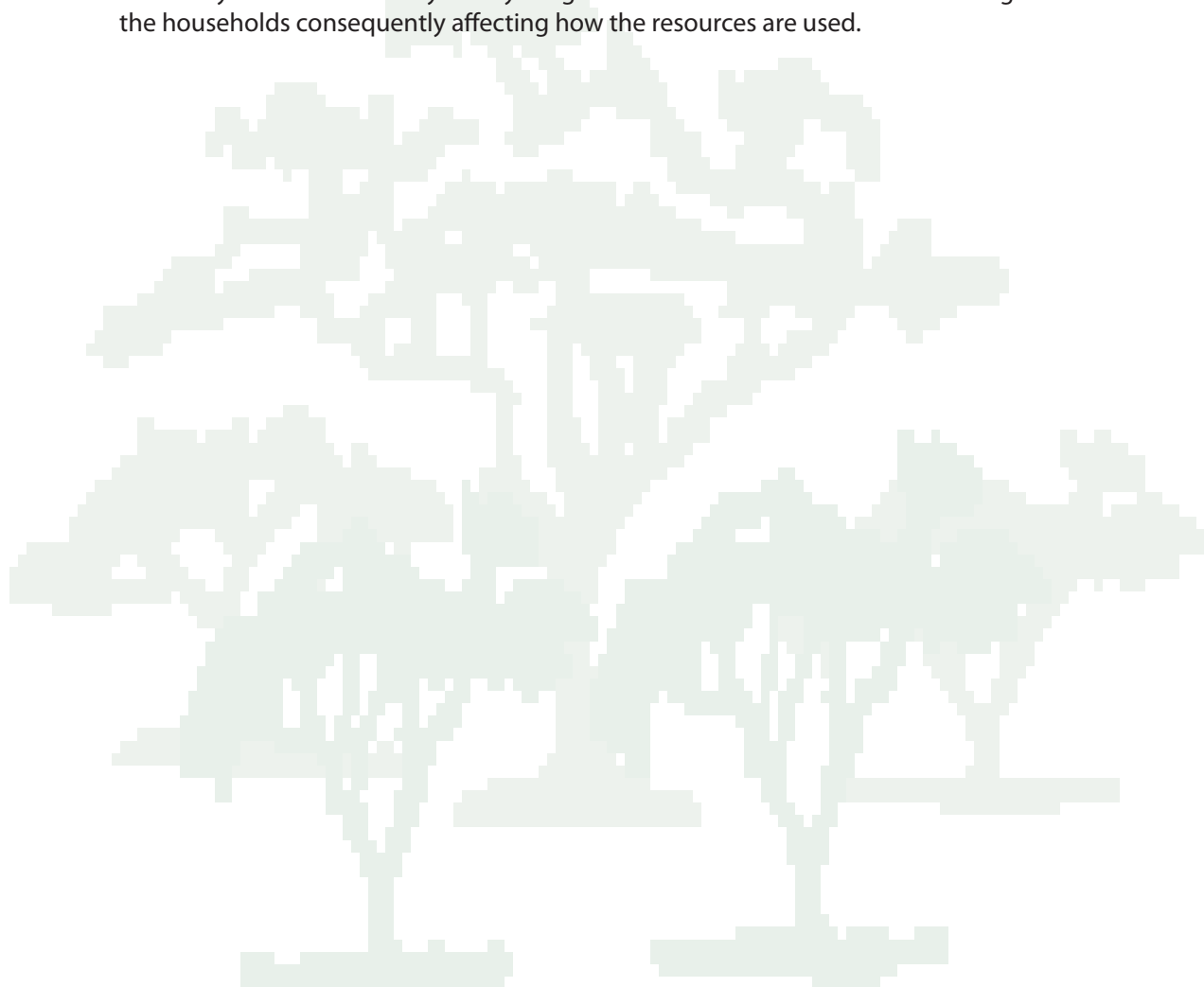
## 5.6 Natural Capital

Most of the land in Buyangu has titles with boundary problems with KFS in some parts and community members feel they are mistreated for farming close to forest boundary. The community are involved in on-farm tree planting in their farms with Eucalyptus spp. being the major planted species.

## Chapter Six

### Intra-household differentiation

In Buyangu community, the women and the children work more but the men control the money. Apparently due to their traditional beliefs the women do not see this as an issue. The women are not again allowed to sit while facing the men or near the men when they are in meetings because it is the men who are the heads of the families and will always have the first say at anything. This has an effect in decision making within the households consequently affecting how the resources are used.



## Chapter Seven

### Summary of results

#### 7.1 Overall poverty and equity impact of the forest

The forest contribution to poverty and equity in the community is negligible but the community perceive denied access to have contributed towards raising poverty levels with some members of the community failing to get grass to thatch their houses. The community feel that KWS is benefiting through charging gate fees which it does not share with them. The impact is uniform across the well being categories.

#### 7.2 Vulnerability, Risk & Sustainability

Vulnerability of Buyangu community is during death of a member 54% and illness 24.3 %. Drought accounts for 13.5% of the shock in the last five years as shown in (table 11) below.

Table 11: Greatest shocks to livelihood in the last 5 years

Shock	Buyangu
Death (People/cows)	54.1
Illness	24.3
Drought	13.5
Crop pest	0
Game damage e.g. elephants	2.7
Theft	2.7
Social problems e.g. divorce, financial constraint	2.7
Ban on NRC	0
Total (%)	100.0

#### 7.3 Sustainability: threats and opportunities

Buyangu community continues to depend on the forest for thatching grass, poles and herbs. The ban on access to the forest by KWS has affected especially women who cannot collect firewood and have to travel far to access firewood from other zones of the forest.

### Fodder and firewood accessed informally



Buyangu community has a potential of benefiting from PFM in future but it has to be introduced with participation of KWS and other Kakamega forest based organizations like KEEP and Isukha Heritage. The potential benefits arising from tourism could be shared with community members as an incentive to protect the forest. The existing community structures could be used as launching pads for PFM.

The major threat is the continued ban to forest use which has brought hostility between the community and KWS. KWS has tried to minimize this through offering casual jobs to the local community.

The community perceive that it will lose more if the forest is converted into other uses. Their main issue is how they can access benefits.

## 7.4 Attribution of impact to PFM: summary

The Buyangu community can not attribute any change to their livelihoods to the forest directly as they have been denied access for over ten years. The denied access has though contributed to them establishing on-farm woodlots in their farms for both domestic and commercial use.

## Conclusions

Buyangu community is facing difficulties due to lack of access to collect firewood, herbs, thatching grass and building poles from the forest. This can be reversed if KWS, KFS and other stakeholders put in place mechanisms that involve the community in order to benefit them. This will require to be supported by a consultative process of defining roles and responsibilities of all stakeholders with eventual signing of a formal agreement.

Ecotourism and promotion of local community heritage among other IGAS could be encouraged to create incentives for participation of community members in forest management. This could be initiated through KEEP which has an education Centre in Buyangu in addition to the other two education centres around the forest. KEEP also has the experience to run the activities and has established a working rapport with the community.

Buyangu community can also benefit from projects already established in Isecheno community that include butterfly farming and Mukombero by acting as out growers initially. A few members of the community could be trained in tour guiding targeting the already existing camp sites with a long-term plan to build community bandas.

The long-term challenge though for PFM in Buyangu remains the Wildlife policy, legislation and practice which support non-utilization of wild resources.

## References

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- Mitchell, N. 2004, The Exploitation and disturbance history of Kakamega Forest, Western Kenya. Biota East Report No. 1.

## Appendices

Appendix – (a) Household Listing and Well Being Ranking Buyangu Village in Buyangu Kakamega.

No	Name of Household	Well being Rank	
		2006	1995
1	Japheth Liseche	B	C
2	Benjamin Licheveleli (Dead)	B	B
3	Andrew Simwa	B	B
4	Luka Litali	B	B
5	Elikana Chituyi	A	A
6	Kerisham Muhande (Dead )	B	B
7	Timothy Mukhola	B	---
8	Shem Muhande	B	B
9	Joab Muhande	B	----
10	Timothy Muhande	C	----
11	Glaide Muhande	C	----
12	Christopher Shembekho	B	B
13	John Muhanji	A	A
14	Luka Mutsami	B	B
15	Jackton Chituyi	B	B
16	Sulmena Indechi	B	B
17	Ernest Sajita	A	A
18	Levi Matafali	B	B
19	Shadrack Liseche	B	---
20	Isaac Liseche	B	---
21	Daniel Liseche	B	B
22	Nathan Lucheveleli	B	B
23	Elikana Milimu	B	B
24	Jothom Musungu	B	---
25	Aebu Ihachi	B	---
26	David Ihachi	B	B
27	Andrew Induku	B	B
28	Stephen Isack	B	---
29	Kerry Ihachi	B	B
30	James Nekosi	C	C
31	Nathan Mingisi	B	B
32	Wilson Shilungu	B	---
33	Reuben Alwanda	B	---
34	Nashon Andimo	B	B
35	John Manjinji	B	B
36	Zakaria Nekosi	B	---
37	Rael Manjinji	B	B
38	Jonah Musisi (Dead)	B	B
39	Reuben Ingaji	A	A
40	Welesi Shikombe	B	B
41	Benson Bwibo	B	---
42	Zakayo Mukhola	B	B
43	Joseph Alukhungu	B	B
44	Laban Karanja	A	A
45	John Karanja	B	B
46	Alois Osundwa	B	B
47	Joel Osundwa	B	B
48	Andrew Tali	B	B
49	Peter Musisi (Dead)	B	B
50	Elijah Musisi	B	B
51	Musa Liseche	B	B
52	Charles Musisi	B	---
53	Banyako Amombo	C	C
54	Francis Mukabwa	C	C
55	Evans Atenya	C	C
56	Shilavu Amombo	B	B
57	Wilson Manjinji (Dead)	B	B
58	Japheth Induku	B	B
59	Shadrack Mutaliani (Dead)	B	B
60	George Alingo (Dead)	B	B
61	Abungwa Shindandayi	B	B
62	Japheth Anyova (Dead)	B	B
63	Andrew Mmbango	B	B
64	Banedi Musisi	B	B
65	Seth Musisi	A	A
66	James Musisi	B	B
67	Japheth Musisi	A	A
68	Timothy Mambili	B	B
69	Patrick Lichungu	B	---
70	Alex Avomba	B	B
71	Andrew Makonjio	C	C
72	Ernest Lukano	C	C
73	Shem Akate	B	B
74	Paul Lukano	B	B
75	Simon Loka	B	B
76	Richard Mulama	B	B
77	Simon Atongo	B	B
78	John Mutalia	B	B
79	Andrew Mulimu	B	B
80	Chimwani Likuyani	B	B
81	Esbon Likuyani	B	B
82	Hudson Manjanja	B	---
83	Gabriel Lukano	C	C

84	Philip Indeché	B	B
85	Josphat Machanja	B	B
86	Samson Bitoti	B	B
87	Boniface Machimbo	B	B
88	Wilson Lunani	A	A
89	Sisko Okoth	C	C
90	Dickson Obwota	C	C
91	Andrew Shamala	B	B
92	Jackson Muhalia	C	C
93	Timothy Muhalia	C	---
94	Leonad Muhalia	C	---
95	Alphred Mulovi	C	---
96	Jacob Muhalia	C	C
97	Martin Anakayi	C	---
98	Namunyu Narierie	C	C
99	Albert Haywa	B	B
100	Joshua Kutoto	B	B
101	James Ingutia	B	B
102	Protus Makongo	B	B
103	Esther Ingutia	B	B
104	Alex Shihunwa	B	B
105	Zakayo Anakayi	B	B
106	Andrew Amasa	A	A
107	Laban Induku	A	A
108	Henry Indeché (Dead)	A	A
109	Huru Shimwenyi	C	C
110	Atoli William	C	C
111	Laban Shimwenyi	C	C
112	Zadock Mwakha	C	---

113	James Mwanje	B	B
114	Caleb Asutsi (Dead)	B	B
115	Alfred Shikami	B	B
116	Richard Shikami	B	B
117	Okoth	B	B
118	Elkana Chituyi	A	A
119	Chituyi Karanja	B	B
120	Paul Karanja	B	B
121	Peter Karanja	B	----
122	Amos Tali	A	A
123	Enock Osundwa	B	B
124	Musungu Tali	B	B
125	Mito Tali	B	B
126	Patrick Kaka	B	B
127	Shaphan Petro	B	---
128	Habat Tali	B	---
129	Stephen Tali	B	B
130	Atoli Tali	B	-----
131	Nixon Kwayia	B	---
132	Bernard Mutalia	C	---
133	Reuben Muhanda	C	---
134	Isaiah Shidandayi	B	---
135	Michel Litali	A	A
136	Benaya Musisi	B	B
137	Nathan Karanja	B	B
138	Peter Ingati	C	C
139	Zablon Mukhula	B	B
140	Brown Okoth	C	C

## Footnotes

- 1 A claim that could not be authenticated