Theme: Forests for people

Topic: The Impacts of Participatory Forest Management Implementation on the Community Livelihoods around Eburu forest

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ABSTRACT.

This study examines the impact of Participatory Forest Management (PFM) on the livelihoods of people around Eburu Forest taking part in PFM with the main objective of contributing to improved forest governance. It studies the impacts on the livelihoods of the Committee Forest Association (CFA) members before and after the introduction of this forest management tool. The study questions: has Participatory Forest Management led to marked economic, social and environmental impacts? ; And what are the perceptions of the community on participatory forest management.

In March 2015 data was collected on effects on the livelihoods of people showing the social, natural and financial capital gained from the forest since the beginning of PFM. The perceptions of the people on PFM were also assessed. Challenges that the people face were assessed with not having a policy that states how the benefits should be shared between the community members and the Kenya Forest Service being the most challenging. The results show dependence on Eburu Forest and the forest benefits exceed the cost. It also shows increased food security as the people practice agroforestry more compared to previous years.

The study therefore concludes that though expensive and gradual PFM is a forest management tool that can help support the people around Eburu forest by improving their livelihoods, ensuring food security and also improved forest governance.

Key words: Participatory forest management, food security and livelihoods.

CHAPTER 1

1.0.1 Introduction

Participatory forest management is an arrangement where key stakeholders enter into mutually enforceable agreements that define the respective roles, responsibilities, benefits and authority in the management of defined forest resources (Matiku, 2011). Participatory Forest Management (PFM) is a management tool that involves mobilizing of local people for group action in managing specific forest area adjacent to their settlement in order to ensure socio-economic development of community and reduce pressure on forests. This involves sharing responsibilities and benefits according to a well-defined and mutually agreed on set of rules and regulations. The agreed rules and regulation are planned, implemented, maintained and monitored by the village institutions. (Ongugo et.al, 2009).

The main objective of Participatory Forest Management is to ensure a wider local ownership and support for forest conservation. Provision of non-forest alternative sources of income, and legitimate participation in forest management are important components of sustainable natural resource management strategies across East Africa. Laws and policies exist that allow collaborative natural resources management with respect to forests. These laws and policies include: Kenya: Forest act 2005, Tanzania: Forest act 2002, Uganda: Forestry Policy 2001. (Matiku, 2009)

Kenya has a relatively low forest cover with closed canopy forest covering about 1.24 million hectares while plantations cover 0.16 million hectares. The total forest area is less than 3 per cent of the total land area of Kenya. Most of the indigenous forests occur in high potential areas where they are under severe pressure and competition from other forms of land use. They continue to be degraded, but with proper management they could become modified secondary forests. Proper management leads to economic growth and socio-political stability of the country in the long term (FA0, 2002)

Between 2001 and 2005 Kenya Forest Working Group was funded by the Ford Foundation to help communities to develop community based forest management plans in five forests namely Rumuruti, Eburu, Kereita, Ngangano and Kitobo. Ford Foundation provided another grant for Kenya Forest Working Group to continue with participatory forest management work. The objective of this grant was to; strengthen capacity of Kenya Forest Working Group/Forestry

Department/Kenya Forestry Research Institute PFM team to contribute to improved livelihoods of local communities, strengthen capacity of local community association to engage in beneficial partnerships with lead forest institutions and promote PFM in Kenya. Eburu forest implemented the PFM practice in 2007 (KFS, 2007). However, no study has evaluated the impacts of this practice to local communities and the CFA group members. Therefore this study seeks to show impacts of PFM on community livelihoods.

1.0.2 Statement of the problem

Destruction of the forest occasioned by governance systems has a number of implications namely: drying up of some seasonal rivers, reduced rainfall, reduced biodiversity and reduction in the aesthetic value. These problems can lead to vulnerability of local community livelihoods. PFM serves as an alternative form of forest governance which has been embraced by many nations. However, how it has succeeded depends on implementation at specific sites.

1.0.3 Significance of the study

This study will provide data and information to assess the level of improvement of the livelihoods of the people since the introduction of participatory forest management. This study will serve to assess how PFM model of forest governance influences the socio-economic development of communities. Data collected will be useful for informing policy.

1.0.4 Objectives

1.0.4.1 General objective.

To contribute to improved forest governance.

1.0.4.2 Specific objectives.

1. To assess community perceptions on PFM around Eburu Forest.
2. To evaluate the socio-economic impacts of PFM to local communities around Eburu forest

CHAPTER 2

2.0 Literature review

2.0.1 Forestry

Kenya has a relatively low forest cover with closed canopy forest covering about 1.24 million hectare while plantations 0.16 million hectare. The total forest area is less than 3 per cent of the total land area of Kenya. Most of the indigenous forests occur in high potential areas where they are under severe pressure and competition from other forms of land use. They continue to be degraded, but if proper management and control could be installed, they could become the so-called modified (near-natural) or post extraction and abandonment secondary forests. This considerably undermined the prospects for long-term economic growth and socio-political stability of the country. (Wandago, 2002)

The beneficiaries of forests are quite varied and include the forest dwellers, forest adjacent households, commercial producers and users of forest products, nature lovers and Eco tourists. The main users are the forest adjacent households who rely on all the forest types all year round for their subsistence. The pastoralists only use some of these forests for dry season grazing. (Wandago, 2002)

Communities living within 5 km of the forest boundary make most use of forest resources. It is these peripheral forest areas that are most heavily used. The result of this is that individual forests have to be over 8000 ha in area before they can have a real chance of maintaining an undisturbed core zone. The reality is that even in areas like Mt. Kenya with over 210,000 hectare, the level of disturbance is as deep as 30 km inside where clearing is done for marijuana growing and illegal logging, resulting in gaps. (Wandago, 2002)

The indigenous forests provide not only wood products but a wide range of goods and services to the local users including medicinal plants, honey and thatching grass, fodder, fuel wood and charcoal, as well as sand, saplings, seeds, cultural sites and food. Both local and international researchers use forests for scientific and social studies. Carbon sequestration, soil and water conservation are also major roles played by these modified forests. (Wandago, 2002)

Although the forest department has been involved in the management of the forest there are challenges that have been encountered. They include constraints in undertaking regulatory, statutory functions, lack of autonomy and exposure to external influence, no economic valuation of forestry resources, depletion of forest cover through over-exploitation thus increasing the area under secondary forests, lack of appropriate information on management purposes, land-use conflicts between these forests centering on agricultural and urban development and lack of sufficient funds to manage these forests. (Wandago, 2002)

2.0.2 The Kenya Forest Act, 2005

The Kenya Forest Act, 2005, was developed and enacted to end the colonial command and control of forests while at the same time recognizing that state agencies had failed to protect forests surrounded by disgruntled local communities. Section 46 of the forest act allows members of a community resident around a forest area to register a Community Forest Association under the Societies Act, 1998 (Chapter 108), in order to participate in the management and conservation of state and local authority managed forests. Communities registered in this manner can invoke section 47 of the forests and formulate and implement forest programmes consistent with the traditional forest user rights of the community in accordance with sustainable use criteria (Matiku et al. 2011). They are supposed to assist the Kenya Forest Service (the state agency responsible for forest management) in enforcing the provisions of the forest produce. Section 13(2) of the Forest Act,2005, allows establishment of forest conservation committees under the Act, to, among other functions, assist local communities to benefit from royalties and other rights derived from flora and fauna traditionally used or newly discovered by such communities (Matiku et al, 2011). Under section 18 of the Forest Act, 2005, a Forest Management and Conservation Fund is established of nurseries and seedling production facilitation of education and research activities among other uses (Matiku et al, 2011). Section 25(4) of the Act allows owners of Private Forests to apply for exemption from paying part or all land rate charges and seek technical advice on appropriate forestry practices, while Section 52 of the Act defers any person from engaging in prohibited activities in the forest, and provides harsh penalties such as fines of not less than 50,000 Kenyan shillings or imprisonment of not less than 6months, or both, to those who contravene this provision (Matiku et al. 2011). According to the Forest Act, 2005, illegal activities may include cutting or extracting forest produce or collecting honey and without a license or permit, or clearing of the

forest for cultivation, or any other activities that are likely to be destructive to the forest. The low capacity of the Kenya Forest Service means that they are unable to patrol and guard the entire forest parameter; hence the desperate need to engage local communities in forest conservation (Matiku el al. 2011). Unfortunately the Forest Act has remained largely unimplemented as the institutional structures for the Kenya Forest Service has not been completed and devolution of forest management powers is not yet to take place (Matiku et al. 2011).

2.0.3 Participatory forest management

Participatory Forest Management is part of a wider initiative to devolve power of management and decision making from the government to the local communities (Inoue, 2000). Since the late 1970s many participatory forest management systems have been practiced in the tropics because professional foresters noticed that they could not manage the forests sustainably under the principle of conventional and industrial forestry. A participatory forest management system is considered to be an indispensable policy concept to achieve sustainable forest management at present. According to initial definitions, social forestry and community forestry were defined similarly as any situation which intimately involves local people in a forestry activity for rural development. (FAO, 1978)

However, it seems that the term social forestry involves a wider range of comprehensive participatory activities such as farm forestry or individual forestry, and the term community forestry implies collective activities rather than individual activities.

The forest sector plays an important role in providing opportunities for tree and wood-based industrial development. The expansion of small and medium scale forest-based industries will create employment and diversify means of livelihood. Direct values in terms of timber, wood fuel and poles from gazette forests are estimated to contribute 4.8 billion Kenya shillings annually to the GDP. Further, non-wood forest products contribute 3.2 Kenya shillings annually while other wood products such as wood carvings, and tea basketry, have combined turnover of 2 billion Kenyan shillings annually (MENR, 2006).

Forest managers are being challenged to ensure that forestry contributes towards poverty reduction and that they enact mechanisms for benefit sharing with forest adjacent communities as per the Kenya Forest Policy (MENR, 2007). The policy document is explicit in terms of how communities

should participate in forest management. In the Kenyan context, PMF is only allowed by the Forest Act (2005) to be applicable in indigenous forests where a balance between provision of forest goods and services and conservation of soil, water and biodiversity must be ensured (Mbugua, 2007). There are several policy statements which provide guidance on this. So far, PMF in all the sites of implementation with income generating activities (IGAs) as a key benefit component with the communities being helped to start activities like butterfly farming, beekeeping, plant breeding and plant-based products extraction, this has led to increased cash returns to the communities with spill-over effects on creating employment and several other household assets. PMF is also intended to legalize and regulate some illegal uses of forest by the communities. (Mbugua, 2007)

PFM implementation in Kenya is at early stages with majority of the sites being in their eighth year. Two future PFM scenarios are beginning to emerge. In the first communities are in joint agreement with the Kenya Forest Service (KFS) in state owned forests with varying degrees of responsibility and decision making. This is a modified form of Joint Forest management (JFM). In the second model, communities traditionally own and manage the forests; an approach which is known as Traditional Communally Based Forest Management (TCBFM). The benefits and implementation strategies vary from one forest to another. These experiences provide important lessons for successful implementation of PFM in Kenya. (Mbuvi et.al. 2009)

2.0.4 An overview of PFM implementation

2.0.4.1 Kenya

In the past, management of forests in Kenya laid emphasis on protection through command and control system with minimal participation of other stakeholders. Upon the realization that it was only by involving the communities that there can be sustainability in the management of the forests, Kenya embraced Participatory Forest Management (PFM) as an approach towards achieving sustainable forest management as well as a means of improving the livelihoods of the forest adjacent communities. Among the forests where PFM has been implemented include the following:

2.0.4.2 Arabuko Sosoke forest

A study done by Matiku to examine the impact of PFM on forest-adjacent household livelihoods in the Arabuko-Sokoke forest in Kenya compared the impacts on households near PFM zones with those in non-PFM zones. The data analyzed included: effects of PFM on house hold incomes of local communities around Arabuko Sosoke forest, changes in distribution of house hold benefits. The results showed varied household dependence on the Arabuko-Sosoke forest. In addition the forest benefits exceed costs in PFM zones but the forest is a cost in non-PFM zones, and costs and benefits reduced with distance from forest edge. The study concluded that, though not cheap, PFM is a tool that can help the Arabuko-Sosoke forest support the adjacent local communities. (Matiku, 2009)

2.0.4.3 Eburu forest

Mutune, (2014) studied to establish livelihood impacts of decentralised forest management: empirical evidence from Sururu and Eburu forests, Kenya. The study sought to examine impact differences between CFA members and non-members residing within Sururu and Eburu forest areas. The results showed that PFM has both positive and negative livelihood impacts and in both sites CFA members had higher total household, beekeeping, tree nursery and forest income relative to what they would have received if they had not participated in PFM. The conclusions made after this study showed that PFM can result to improved livelihood when properly institutionalised. However, the gap is likely to widen between the poor and the non-poor households. Direct PFM benefits are at participation level but the interests of the poor who are most dependent on forest resources are not well represented. (Mutune, 2014)

2.0.4.4 Mt. Kenya

A management plan was developed by the Kenya Forest service to run from the year 2010-2019. It affected the Mt. Kenya forest reserve to guide the establishment, development and sustainable management, including conservation and rational utilization of the forest and allied resources for socio-economic development. The Mt. Kenya forest contains several resources that are of benefit to local communities and the country. These resources are in terms of fauna, flora, soil, water and their ecological functions. Communities extract a variety of resources from the forest including

firewood, building materials, medicinal plants, fish, water, honey and fodder for livestock. All these entail conservation measures to be put in place by the government in collaboration with stakeholders for posterity. The main conservation initiatives envisaged include: wildlife, biodiversity, soil and water conservation which cannot be realized by government and nongovernmental working within the ecosystem, without the involvement of the local communities since they are the direct beneficiaries. However elaborate participatory engagement with communities were to be put in place to address differential interpretation and enforcement of regulations, lack of well-established community structures and put in place cost and benefit sharing mechanisms. The main objective of management plan was to promote community nature based enterprises for livelihood improvement. (KFS, 2010)

2.0.4.5 Kereita forest

A study on the influence of participatory forest management on the livelihoods of forest adjacent communities in Kereita Forest Station of Kiambu district was carried out the Kenya Forest Working Group. The study investigated the extent to which the attitudes of forest adjacent communities towards PFM affected their livelihoods; investigate opportunities and benefits available under PFM which if fully exploited could result in improved livelihoods of the forest adjacent communities; and explore the challenges encountered in the implementation of participatory forest management in an effort to improve the livelihoods of forest adjacent communities. The results showed that the forest adjacent community valued PFM and were very positive about it. Opportunities existed within the forest and these included: bee keeping, fish farming and ecotourism activities. Though the community was involved in a few forestry activities such as firewood collection, livestock fodder gathering and livestock grazing, it was evident from the results that PFM had contributed to the improvement of the household incomes and hence the livelihoods of the forest adjacent community. The study recommended that for PFM to succeed in Kenya there it needs to ensure that benefits exceed the costs incurred by forest adjacent communities in order to generate sufficient incentives for long term community engagement. Signing of management agreements between the local communities and the forestry authorities was key to reduce the conflict between the community and the Kenya Forest Service during benefit

sharing. The establishment of a Forest Conservation and Management Fund which is supposed to support the forest conservation efforts was deemed necessary.

2.0.4.6 Tanzania

Over the past 15 years the Tanzanian government promoted PFM (both joint forest management and community-based forest management) as a major strategy for managing natural forests for sustainable use and conservation. Such management is currently either operational or in the process of being established in 3.6 million ha of forest land and in 1,800 villages. Data from three case studies of forests managed using participatory and non-participatory forest management approaches suggest that community involvement in forest management was correlated with improved forest condition (Blonley, 2008).

2.0.4.7 Global

Participatory forest management has also been applied in India and Nepal to enhance forest monitoring with the help of "citizen scientists". This provides additional resources for forest monitoring and at the same time help to communicate with stakeholders and the general public. Also the implementation of PFM in India and Nepal ensured that participatory forest management is made more pro-poor by leasing forest land to the poor for agroforestry or herb cultivation. Improving high-level policy processes and making devolutions more equitable to the use of natural resources (Hobley, 1996).

CHAPTER 3

3.0 Materials and Methods

3.0.1 Study area

Eburu forest reserve is located in Nakuru County at agro ecological zone 5. It is part of the Mau complex and was gazetted in 1932 under proclamation (legal notice) no 44 of 1932. It occupies an area of 8715.3 hectares. The forest forms part of the catchment for Lake Naivasha and Lake Elementaita and several ground spring.

Map of the area (Figure 1)

3.0.2 Study design

The study design was a survey which was to be conducted on the socio-economic survey of the community forest associations in Eburu forest. Survey design was used because surveys are useful in describing the characteristics of a large population. No other research method can provide this broad capability, which ensures a more accurate sample to gather targeted results in which to draw conclusions and make important decisions.

3.0.3 Data collection and variables

A stratified random survey was conducted. Household samples were generated at the forest block level using Participatory Geographic Information System (PGIS). As part of each survey, qualitative and quantitative information was acquired from the community leaders, foresters and household heads using the social research methods such as household questionnaires, focus group discussions and key informant interviews.

3.0.3.1 Study sample size

The target populations (300 households) within the Eburu forest ecosystem were communities adjacent that were part of the community forest association (CFA) to the following forest blocks: Eburu, Kiambogo and Ndabibi.

3.0.3.2 Use of secondary data

Available data including published case studies that have been collected in the past by other people on participatory forest management and how it has affected the livelihoods of the people around several forests were used in this research.

Key informants including knowledgeable community leaders at various levels and informative members of the community especially the CFA members also contributed to this project.

3.0.3.3 Participatory Geographic Information System (PGIS)

Three CFA members were selected from each forest block. One an elderly man, a youth and a woman to give a historic perspective of the state of the forest, natural resources and infrastructures within by drawing a map of before and after destruction of the forest. This map especially the recent one helped in the selection of the households to be interviewed.

3.0.3.4 Use of questionnaire

This method helped to obtain statistically useful information about the effects of participatory forest management on the livelihoods of people around Eburu forest. A series of questions were formulated to get the data needed. Both open ended and closed ended pen-paper questionnaire was used to collect social impacts, natural impacts, financial impacts and perceptions on livelihoods. The questionnaires were administered to the people for answering as per the questions asked using a personal interview approach.

3.0.3.5 Focus Group Discussions

The focus group included a sample size of 30 people from each forest block that comprised of women men and youths of different age groups ranging from 18-60 years and the following issues were discussed:

I. Impact of PFM on direct and indirect cash income,
II. Impact of PFM on crop production,
III. Impact of PFM on livestock production and
IV. Their overall opinion on PFM.

3.0.3.6 Interviews

The respondents were questioned both individually and as a group. The interviews were carried through face to face method.

3.0.4 Data analysis

The SPSS analytical software and Microsoft excel was use for analysis to show graphically the different ways in which the livelihoods of the people were affected either positively or negatively.

Chi square analysis of variance in Start view statistical programme was used to compare the proportions of costs and benefits at 1 degree of freedom and 95% confidence limits.

CHAPTER 4

4.0 Results and Discussions

4.0.1 Socio- economic livelihood impacts

The results were collected according to the natural capital, social capital, financial capital and the general perceptions of the people the livelihood impacts associated with the forest. The graph below shows how different user groups were represented.

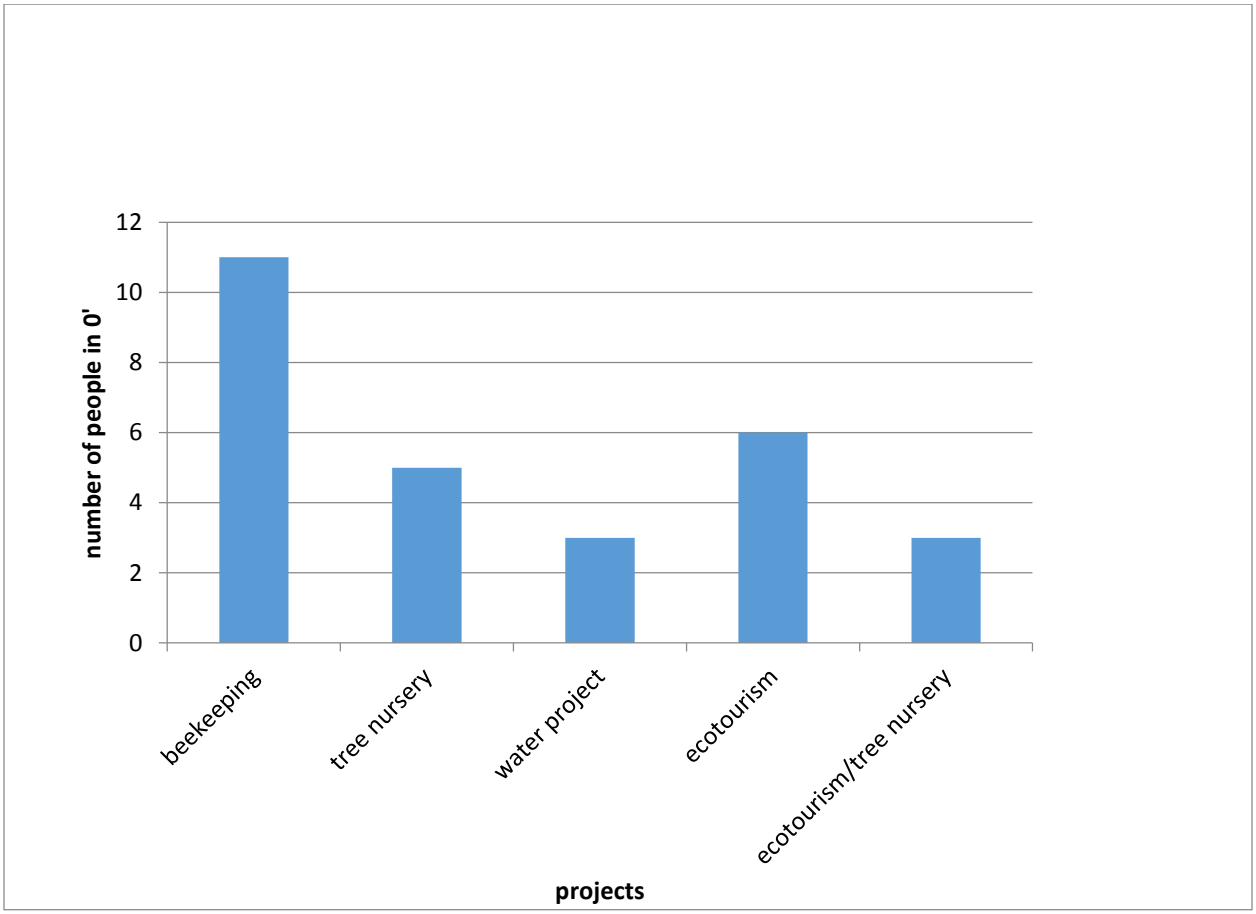

Figure 2: **Different user groups the community members represent.**

The implementation of PFM was associated with the introduction of different projects. The CFA members were assigned to different user groups that came with the introduction of PFM in Eburu Forest which included ecotourism, beekeeping, and water and tree nursery usergroups. Therefore different members were in different user groups with beekeeping having more members. The

beekeeping user group was more preferred since it was a practice most people were doing before PFM and a lot of education was done to make sure the people understood how to maintain beehives, safety measures and harvesting of the honey. Ready market is available for the honey and the members are given the beehives so not much cost is incurred by the people. Some of the persons interviewed were in more than one user group and they got more benefits than those in just one.

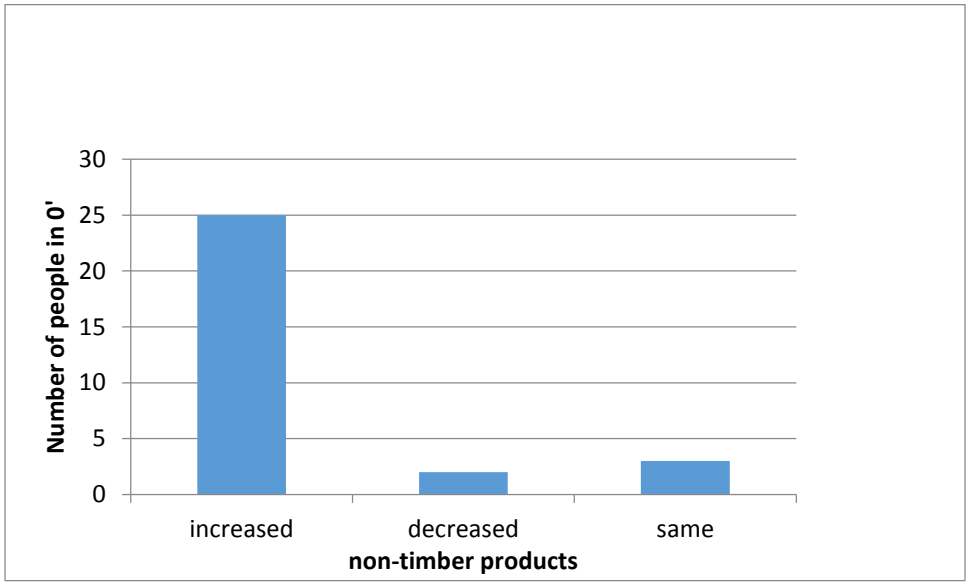

Figure 3: **Impact on access to non-timber products**

Forests have natural resource stocks from which goods and services are derived and Eburu forest has a lot of this starting from the non-timber products (honey, medicinal plants, seeds and natural vegetables). These products have increased due to the increased conservation and management taking place after the introduction of PFM. The non- timber products that is most accessible is honey and it brings an annual income of around 60,000 Kenya shillings and is sold after a period of 3 months. The natural resources derived from the forest have affected the indirectly the health, marketing of livestock and plant improving the general income of the people. Agricultural productivity is also affected positively by the increased conservation and management involved set by PFM.

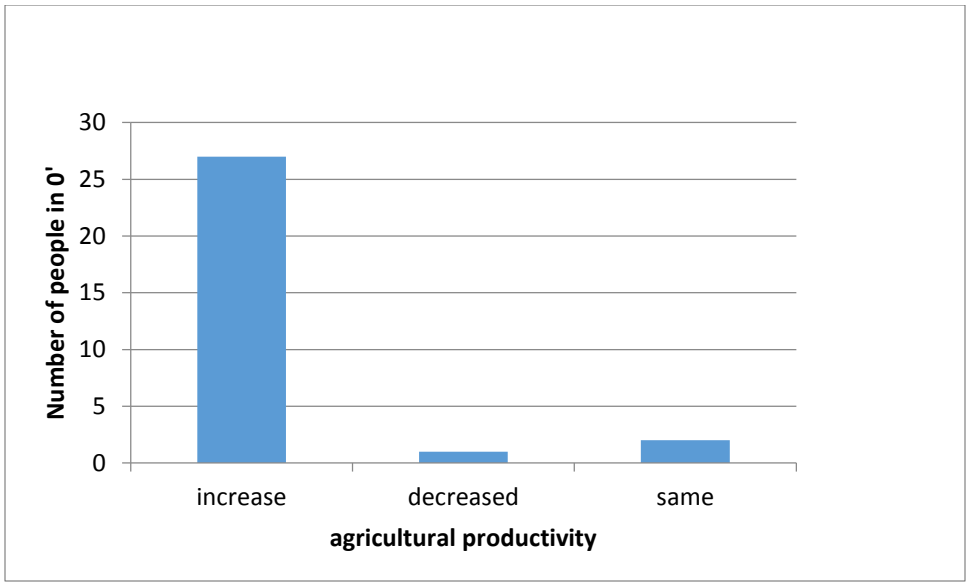

Figure 4: **Effect on agricultural productivity**

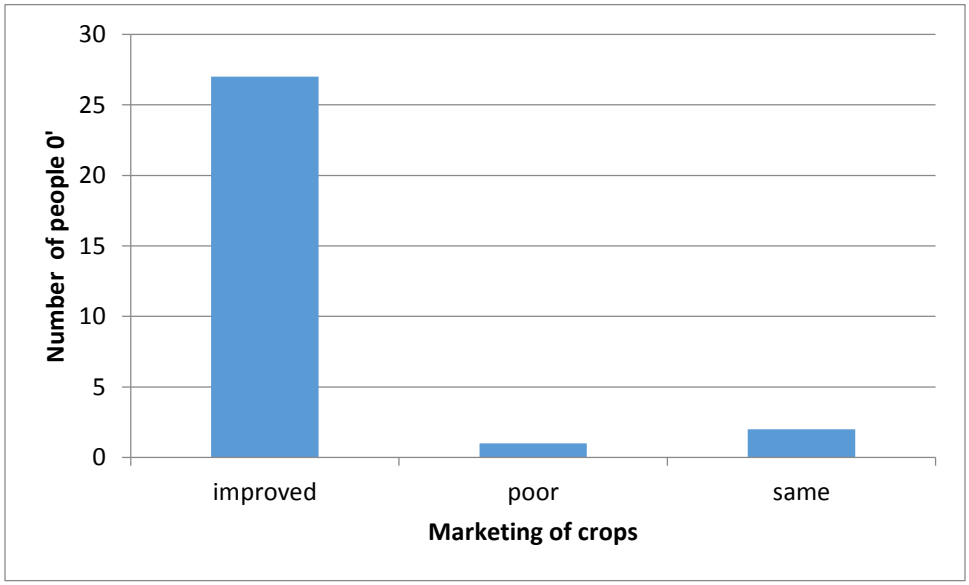

Figure 5 **Impact on marketing of crops**

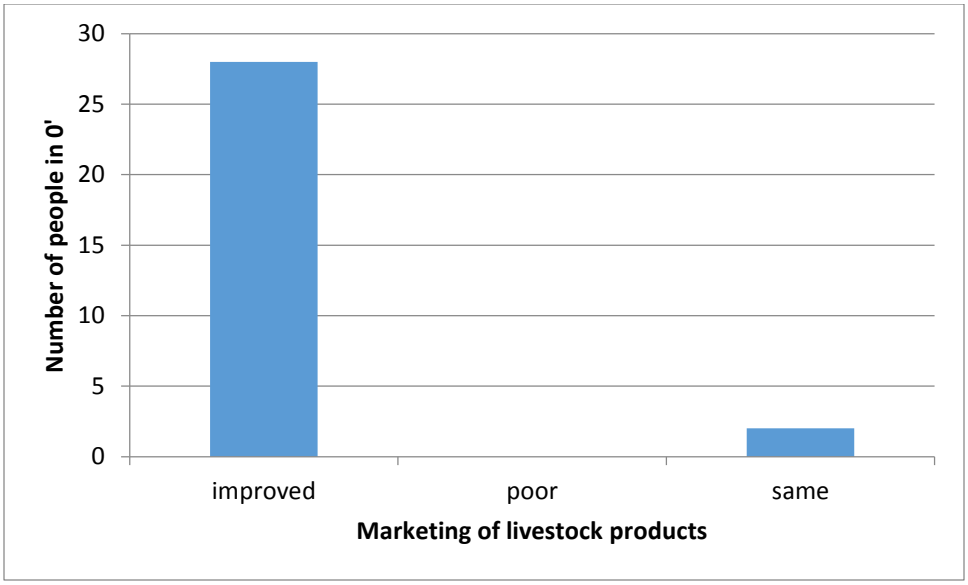

Figure 6: **Effects on marketing of livestock products**

PFM came as a management tool that involves the community in the conservation and management practices. Since the beginning of this practice in Eburu Forest the forest has been conserved and less degradation is taking place due to the people viewing the forest as their own. This has come with several improvements which include: mitigation of climate change, reduced soil erosion and realization of hidden resources like the beautiful birds and butterflies. These birds and butterflies aid in pollination therefore increasing productivity and are also tourist attraction. Due to increased conservation water is in plenty hence enough to aid in agricultural productivity leading to healthier crops and animals. The presence of different varieties of crops and healthy animals has affected marketing since they have more to sell and consume hence improved livelihoods. The people whose productivity remained the same and were poor are those who after even the introduction of PFM did not involve themselves much in agricultural productivity and some reduced their farmlands to include their farmlands to accommodate other practices like bee keeping and tree nursery.

The marketing of crops and livestock showed 1 degree of freedom and 95% confidence limits.

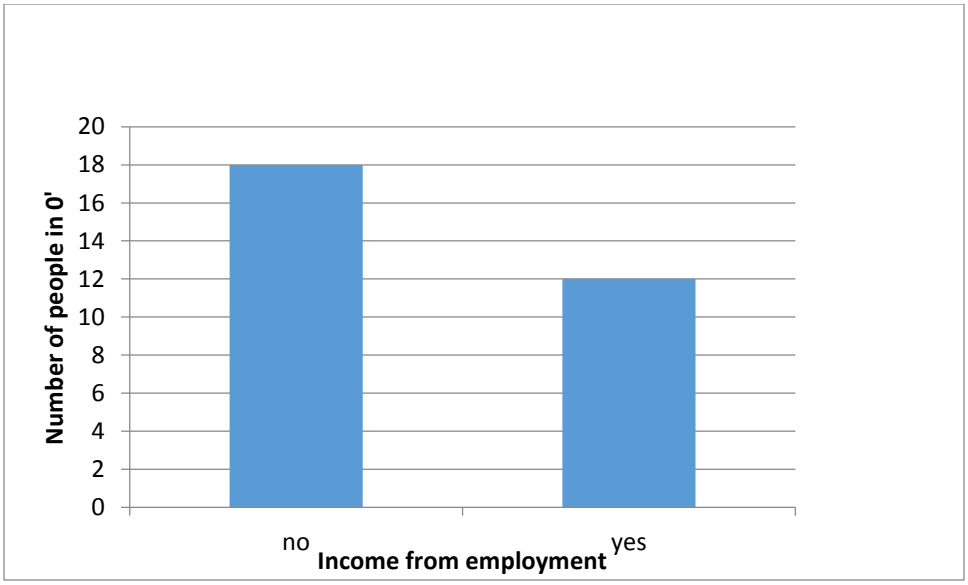

Figure 7: **Income from the employment not related to the forest**

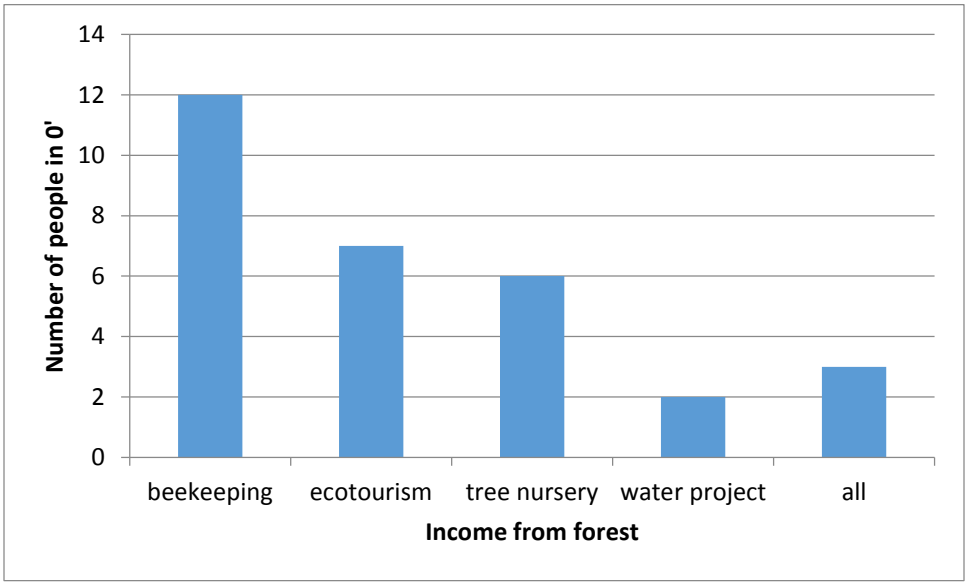

Figure 8: **Income related to the forest**

With the implementation of PFM in Eburu forest the focus has been mainly capacity-building and income generating activities targeting wealth creation for improving household livelihoods. Community based institutions were established, their institutional capacity built, and household and group-based income generation supported alongside education and awareness programmes

and Forest monitoring. Incomes related to the forest are those associated with the income generated from the different projects associated with PFM. Most of the CFA members are not well educated therefore the only source of income they rely on are come from farming activities. Members that have income from other places other than the forest include the CFA chair and mostly the jobs they do cannot sustain them therefore introduction of PFM has improved their lives a great deal since they can now afford things that they could not like school fees for their children.

Chi square analysis of variance in Start view statistical programme was used to compare the proportions of costs and benefits as per the incomes at 1 degree of freedom and 95% confidence limits.

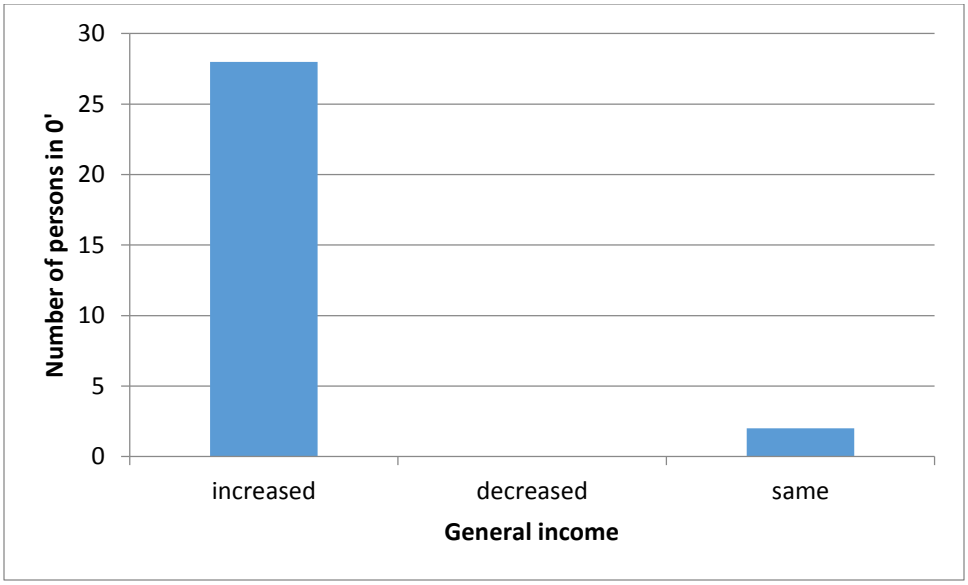

Figure 9: **Impact on the general income of the CFA members**

After all the above impacts the general income of Eburu forest CFA members has improved greatly affecting their livelihoods in a great way.

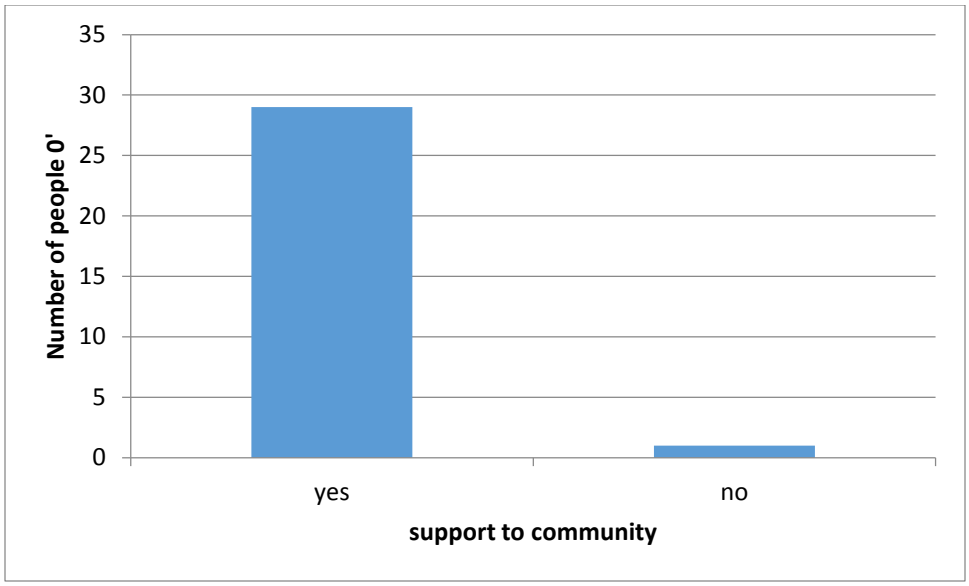

Figure 10: **Effect on the level of support to the community from NGO's/government**

With the introduction of PFM there was support from the NGOs and the government not encountered before. However, the NGOs do most of the funding. The government support is minimal since they do not take Eburu forest as seriously as other common Forests like Mt. Kenya. This has led to a lot of disappointment among the community members leading to a lot of conflicts between the people and the state custodian of the forests, Kenya Forest Service. Some of the nongovernmental organizations supporting Eburu forest include: World vision which was involved in the fencing project, Rhino ark, Kenya Forest Working Group, Act Kenya which was involved in the rehabilitation of the forest and Imarisha Naivasha which is involved in the beekeeping project.

4.0.2 Perceptions on PFM

Assessment of people's perception on PFM was assessed and this helped in bring out different views they had on PFM as a tool of forest governance and on quality of life.

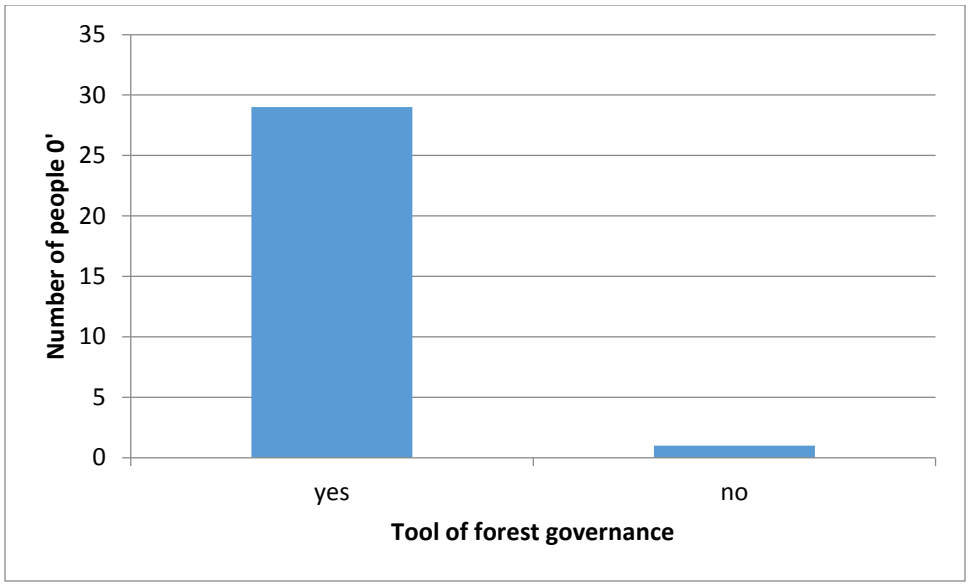

Figure 11: **Effect of PFM on forest governance**

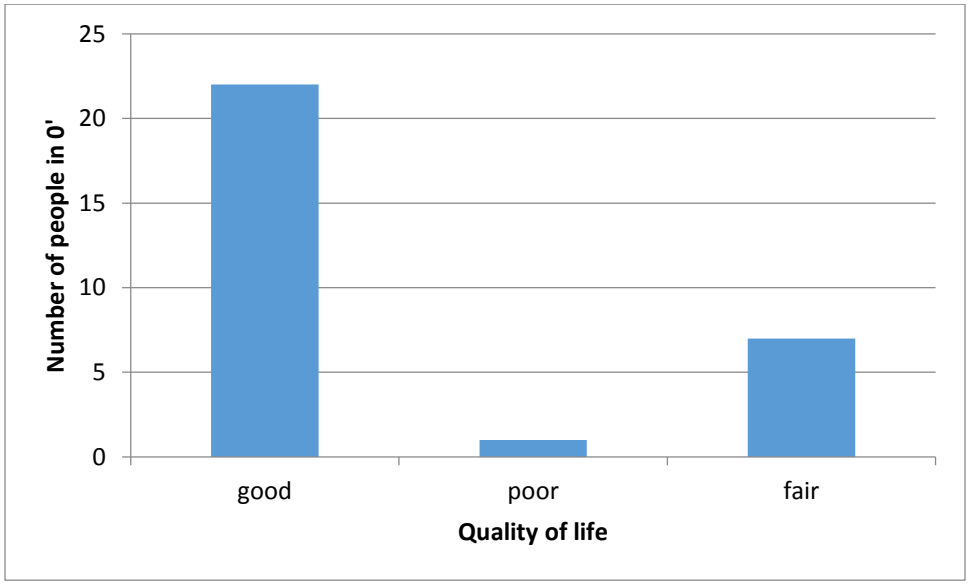

Figure 12: **Effect on the quality of life**

With the implementation of PFM in Eburu Forest the focus has been mainly capacity-building and income generating activities targeting wealth creation for improving household livelihoods. Community based institutions were established, their institutional capacity built, and household and group-based income generation supported alongside education and awareness programmes and Forest monitoring. The increased access to non-timber products has improved the livelihoods of the community; honey brings an income of 60,000 annually sold at intervals of 3 months.

Improved marketing of crops and livestock is due to the improved soil structure reducing erosion and improving the water holding capacity this in turn improves agricultural productivity and the health of crops and livestock. The availability of surplus gives the people a chance of having more to sell and consume therefore reduction of the probability of market failure. With this the livelihood and the quality of life of the community members and people of Eburu forest as a whole is improved.

PFM as a tool of forest governance showed 99% confidence limit and 1 degree of freedom

4.0.3 Results from focus group discussions

During the focus group discussions the following challenges came out clearly from the people that they are facing and that PFM as a tool is facing.

According to the CFA chair PFM faced several challenges during its implementation:

- The management plan took 5 years before signing which slowed the process.
- Dealing with the livelihood aspect has become a problem since there is no policy guiding the cost-benefit sharing therefore conflicts between KFS and the community members.
- Devolution: the new constitution has not yet devolved forest hence bringing management wrangles between the national and the county government.

The challenges affecting the community members include;

- Poor infrastructure
- Illegal logging for charcoal from ignorant community members
- Conflicts between the people and the forest guards since they still do not know much on PFM
- Minimal support from the government
- Frequent forest fires especially during the dry season

Photo 1: picture of some of CFA members durind the Focus Group Discussion

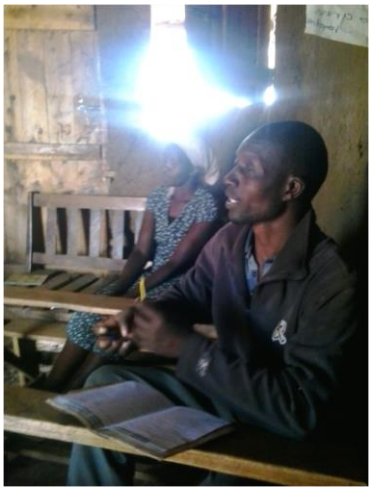

Photo 2: CFA chair Mr. Kirui at the Focus Group Discussions

CHAPTER 5

5.0.1 Conclusion

The livelihoods of people have increased significantly therefore, PFM is a good tool of forest governance and livelihood improvement since though growing gradually it has led to significant benefit. More capacity building is important to continue educating the people on its benefits and also the forest guards and the people at KFS should be made aware that the community members are the chief stakeholders in this participatory management tool.

5.0.2 Recommendations

The community members gone through the challenges of PFM and made it clear on some of the things they would like looked into which include:

- Establish through a participatory process a process for the definition of Criteria and Indicator for Sustainable Forest Management. The Criteria and Indicators will provide standards that will enable KFS to determine what constitutes a good forest management and to define a mismanaged forest.
- Improve the infrastructure of the area
- More funding from the government which has shown less interest
- Continued education on PFM especially to new CFA members and the forest guards
- Quick response from KFS when any fire outbreak is report

CHAPTER 6

6.0.1 References

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6.0.2 APPENDIX

6.0.2.1 Questionnaire

IMPACTS OF PARTICIPATORY FOREST MANAGEMENT IMPLEMENTATION ON THE COMMUNITY LIVELI HOODS AROUND EBURU FOREST

AIM: TO CONTRIBUTE TO IMPROVED FOREST GOVERNANCE.

DECLARATION: ALL THE INFORMATION COLLECTED WILL BE TREATED CONFIDENTIALLY AND USED ENTIRELLY FOR THIS RESEARCH WORK.

SECTION 1: PERSONAL INFORMATION

NAME: ……

GENDER: [ ] MALE [ ] FEMALE

AGE: Below 20 [ ] 20-30 [ ] 30-40 [ ] 40-50 [ ] 50-60 [ ] Above 60 [ ]

EDUCATIONAL LEVEL

ADULTS:

Primary [ ] Secondary [ ] Tertiary college/Institution [ ] University [ ]

YOUTHS:

Primary [ ] Secondary [ ] Tertiary college/Institution [ ] University [ ]

Name of PFM where you are a member……...

SECTION 2: EFFECTS OF THE FOREST AND IMPACTS ON THE LIVELIHOOD

- Fill the questions below.
- If the direct or indirect impact is significant as asked rate the impact on the community as High (3), Medium (2) or low (1) where necessary.
- Answer with a Yes (benefit) or No (cost). Attach a value in Ksh for either the cost or benefit where necessary

Natural capital: Natural resource stocks from which goods and services are derived

1. Has the forest had an impact on your access to non-timber forest products? (specify)

YES [ ] NO [ ]

If yes explain

……
……
……

2. Has the forest had an effect on your access to farming land?

   YES [ ] NO [ ]

   If yes explain

   ……
   ……
   ……

3. Has the forest had an effect on your agricultural productivity in any other way?

   YES [ ] NO [ ]

   ……
   ……
   ……

4. Has the forest had an impact on marketing of crops?

   YES [ ] NO [ ]

   If yes explain and specify

   ……
   ……
   ……

5. Has the forest had an effect on access to grazing by livestock?

   YES [ ] NO [ ]

   ……
   ……
   ……

6. Has the forest had an impact on the access to water for livestock?

   YES [ ] NO [ ]

   ……
   ……
   ……

7. Has the forest had an effect on your livestock productivity in any other way? (specify)

   YES [ ] NO [ ]

   If yes specify and explain

   ……
   ……
   ……

8. Has the forest had an effect on the marketing of livestock?

   YES [ ] NO [ ]

   If yes explain

……
……
……

9. Has the forest had an effect on your access to drinking water?

   YES [ ] NO [

……

……

……

10. Has the forest had an effect on your access to firewood, timber and medicinal plants?

YES [ ] NO [ ]

……

……

……

Social capital: social resources which people acquire in their livelihood

11. Has the forest had an effect on the level of support to your community from NGOs/government?

YES [ ] NO [ ]

……

……

……

12. Has the forest had an effect on social relations within your community and other communities?

YES [ ] NO [ ]

If yes or no explain how

……

……

……

13. Has the forest had an improvement on the level of security for people?

YES [ ] NO [ ]

Financial capital: financial capital that people use to achieve livelihood objectives e.g. Pensions, regular income, cash, savings, loans, debts.

14. Do you have income from employment not related to the forest?

    YES [ ] NO [ ]

    If yes explain say how

……
……
……

15. Do you have income from employment related to the forest?

    YES [ ] NO [ ]

    If yes explain

……
……
……

16. Do you receive any financial gain from the forest managers?

    YES [ ] NO [ ]

    If yes explain

……
……
……

SECTION 3: PERCEPTIONS ON LIVELIHOOD OUTCOME

1. How has the forest affected the quality of life quality of life?

   ……
   ……
   ……

2. Is PFM a good tool for forest governance?

Yes [ ] No [ ]

3. Should PFM be continued?

   Yes [ ] No [ ]

   Explain each answer

   ……

   ……

   ……

4. How can PFM be improved for better results (community development and forest conservation)

(i).....

(ii).....

(iii).....