

Assessment of Community Forest Associations in Socio-economic empowerment of communities in Kinangop, Nyandarua County

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DECLARATION

I hereby declare that this is my original work that has not been submitted in any other university for an award.

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DEDICATION

I dedicate this work to my dearest mother, for your prayers, love and support throughout my education and for continually encouraging me to press on. Glory be to God, the Almighty for seeing me through this far.

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ABSTRACT

Participatory Forest Management is a framework that has widely been adopted in management of forests because it includes community and other stakeholders in forest management. The Forest Act (2005) provided way in which PFM would be implemented in Kenya to provide a solution to the problems facing the forestry sector. It provided an opportunity for the community to participate in the management of the forest through co-management of the forest with KFS using Community Forest Associations who together with other stakeholders come up with a Participatory Forest Management Plans for forests that inter alia establishes the CFA's roles, responsibilities and their user rights in the forest reserve.

In the initial stages of implementation of Participatory Forest Management in Kenya it was noted that CFA's face various challenges in their attempts to improve the socio economic status of the forest-adjacent communities which if not addressed, may defeat the purpose of PFM and revert the state of forests to a situation where there is open access to forests and deforestation.

This project was aimed at assessing how PFM has been implemented in Kinangop, Nyandarua County, the steps they have taken to improve the socio-economic status of the community and the challenges they are facing in improving livelihoods.

The findings from questionnaires, interviews, observation and literature review show that a CFA was established with a specific purpose and objectives. However most of the objectives are yet to be met due to various challenges such as lack of funds.

The report is finally concluded with several recommendations that can be adopted by the CFA and other stakeholders to address the challenges they face in socio-economic empowerment of communities.

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LIST OF ABBREVIATIONS

CBNRM - Community Based Natural Resource Management

CFA - Community Forest Associations

DRSRS – Department Of Resource Surveys and Remote Sensing

EMCA – Environmental Management and Coordination Act

FAO – Food and Agriculture Organization

GDP – Gross Domestic Product

GIZ – German International Corporation

IEG – Independent Evaluation Group

IGA – Income Generating Activity

JICA – Japanese International Corporation Agency

KFS – Kenya Forest Association

KFWG – Kenya Forest Working Group

MDG – Millennium Development Goals

MENR – Ministry of Environment and Natural Resources

NGO – Non Governmental Organization

NOKICOFA – North Kinangop Community Forest Association

PELIS - Plantation Establishment and Livelihood Improvement Scheme

PFM - Participatory Forest Management

WWF – World Wildlife Fund

CHAPTER ONE

1.1 BACKGROUND

Worldwide, the inclusion of communities in the management of state-owned or formerly state-owned forest resources has become increasingly common over the last 25 years. Almost all countries in Africa, and many in Asia, are promoting the participation of rural communities in the management and utilization of natural forests and woodlands through some form of Participatory Forest Management (PFM). Many countries have now developed, or are in the process of developing, changes to national policies and legislation that institutionalize PFM. (Schreckenberg, Luttrell, & Moss, 2006)

In many countries, there has been decentralized natural resource management in an attempt to increase equity in decision making and benefit-sharing. It is widely believed that decentralizing can increase both efficiency and equity. (Ribot, 2005)Decentralization takes many different forms and Participatory Forest Management (PFM) is among the variants of decentralization. Many governments have made efforts at decentralizing mainly due to pressure from donors, non-governmental organizations and local politics. (Agrawal & J., 1999)The governments in Eastern and Southern Africa particularly got to the realization that co-management approaches pledge a greater role for local communities, the rural and urban poor as well as the private sector in the management of forests is the only solution (Barrow, Clarke, Grundy, & Y., 2002)

In Kenya, Up until the Forests Act of 2005, forest management objectives were preservationist, excluding local resource users from decision-making and forest management, with minimal and stringent provisions for subsistence extraction and use of forest products. Yet there was massive extraction both by the government and large commercial industries. This contributed to increased illegal exploitation for both subsistence and commercial use. (Mogoi, Obonyo, Ongugo, Oeba, & Mwangi, 2012). According to estimates by (Food and

Agriculture Organization, 2010) Kenya's forest cover at independence in 1963 stood at approximately 11%. Deforestation has reduced Kenya's forest cover to less than 6%, with the country losing approximately 12,000 hectares of forest a year despite the government's attempts to alleviate the problem.

The Forests Act of 2005, unlike its precursor, provides a framework and incentives for community and private sector involvement in the forestry sector. The act has clear provisions on the recognition and role of Community Forest Associations (CFAs). It requires members of a forest community to enter into partnerships with the KFS through registered CFAs. These partnerships are applicable for both state forests and forests under local authorities.

Some of the positive results expected with implementation of PFM process are demonstrated through the changed attitude of local forest-adjacent communities and hence, a change in the level of forest conservation, but such results are highly influenced by the mode of participation adopted by the PFM implementation process. (Ongugo, Koech, Mbuvi, & Maua, 2009)

To enter into co-management arrangements, communities are legally expected to form and register Community Forest Associations (CFAs) within different forests distributed across the country (Ministry of Environment and Natural Resources, 2007). Such an association is vetted based on the certain criteria before it can be allowed to operate including: its objectives, composition of its management committee, election procedures, and the purpose for which its funds may be used. (Ongugo, Koech, Mbuvi, & Maua, 2009)

1.2 PROBLEM STATEMENT

The forest sector in Kenya has faced huge challenges, especially in the context of the continued increase in the pressure on land and the weak governance in the past. Substantial chunks of forests, including plantations, have been encroached and excised in the past often in the pursuit of political patronage. It has been realized that this can be stopped only through improved governance and more importantly addressing the genuine needs of the people, including making them active participants in the sustainable management of the forests.

CFAs like any other institution are prone mismanagement and eventual collapse. An important aspect to note is that communities that form forest associations may not be homogeneous. They may also have varying socio-economic objectives for forming the associations. Lack of homogeneity may also affect their forest management objectives and this in effect may have an impact on the sustainability of the forest resources to which they are adjacent. (Thurow, 1995)

According to (Ongugo P. O., Mogoi, Obonyo, & Oeba, 2008) communities are still not clear on what benefits will accrue from the forest and how this will be enacted. Most associations are still caught up in leadership and power wrangles while other are still unsure on how the management plans are to be developed.

Due to community's lack of silvicultural capacity to run forests, many CFAs have had no option but to engage the private sector who are better equipped in nursery techniques and plantation management. (Ongugo P. O., Mogoi, Obonyo, & Oeba, 2008) This leads to members feeling that they have been left out in the management of plantations and the benefits that accrue from them.

Another source of conflict is the perception of the community versus the attitude required if PFM implementation is to ensure sustainability of the forests. The community still has the attitude that they are fully entitled to the forest land and that they have for a long time been denied of this right resulting in bitterness (Ongugo P. O., Mogoi, Obonyo, & Oeba, 2008).

The future of the world's forests and the future of millions of the world's poorest people are inextricably linked. Rural poverty is concentrated in many areas where the world's biodiversity is most threatened. The poor are agents of forest degradation – sometimes in a struggle to subsist, sometimes in an effort to prosper, and sometimes in response to temporary misfortune (Shively, 2004).

Previous studies showed that resource extraction levels of forest-adjacent households were still a major threat to the conservation values of the forest (Matikua, Mireri, & Ogol, 2013) Even though no forests have been excised since 2007, illegal fuel wood collection continues on community-owned forests (Stiebert, Murphy, Jason, & McFatrige, 2012).

The challenges faced in implementation of PFM in some parts of the country are demoralizing to the forest adjacent communities. This is because the challenges impact on the ability of CFA's to improve socio-economic status which is the main incentive to joining CFA's. 49% of the rural community living in Nyandarua County is poor. (Nyandarua County Integrated Development Plan, 2013). It is therefore important that the challenges hindering CFA's in socio-economic empowerment be identified and addressed.

1.3 RESEARCH QUESTIONS

1. What was the purpose of establishing Community Forest Associations in Kinangop, Nyandarua county
2. To what extent have Community Forest Associations in Kinangop, Nyandarua County achieved their objectives?
3. In what way have Community Forest Associations impacted on the socio-economic status of the community in Kinangop, Nyandarua County?
4. What challenges have hindered Community Forest Associations from achieving their objectives in socio-economic empowerment?

1.4 OBJECTIVES

1. To assess the purpose of CFA's in Kinangop Nyandarua County.
2. To evaluate the extent to which CFA's have achieved their objectives in Kinangop Nyandarua County
3. To assess how CFA's have impacted on the socio-economic status of community in Kinangop Nyandarua County.

4. To assess the challenges that CFA's in Kinangop County are facing in improving the livelihoods of community in Kinangop Nyandarua County

1.5 RESEARCH PREMISES

1. CFA's in Kinangop, Nyandarua County were established with a clear purpose which can be established.
2. CFA's in Kinangop are still in the initial stages of achieving their objectives.
3. CFA's have impacted on the socio-economic status of the community in Kinangop.
4. CFA's face certain challenges in socio-economic empowerment of community in Kinangop which can be ascertained

1.6 JUSTIFICATION

There is a need to create awareness among Community Forest Associations in Kinangop of the opportunities that exist for socio-economic empowerment of community from co-management agreements with Kenya Forest Service in the management of the Aberdare Forest. Empowering the community in decision making with regards to the Aberdare Forest and providing mechanisms for equitably sharing the benefits that accrue from both timber and non-timber forest products will also provide a great incentive for forest conservation. Failure to which, the community feel left out in decision making and deprived of their share of benefits accruing from proper forest management leading to de-motivation and eventual collapse CFA's.

CFA's exist as community based groups which can act as entities through which members can secure funding from various financial institutions and NGO's to start projects that will improve their economic status.

The Social pillar of Kenya Vision 2030 focuses on the environment and in particular articulates the intention to improve the forest cover from less than 3% at present to more than 4%. As one of its flagship projects the vision calls for rehabilitation of the country's five

water towers including the Aberdares. Involving communities in conservation of protected areas has been found to be more effective than strict protection by government agencies. Therefore there is a need to involve the community in protection and monitoring of forests.

Improving the socio-economic conditions of the forest adjacent communities will not only contribute to forest conservation but also to the economic growth of the country in line with the Millennium Development Goal Number 1 on Poverty eradication. It will also contribute to attaining a 10% p.a over the next 25 years as envisioned in Vision 2030.

1.7 SIGNIFICANCE

Successful public private partnerships between KFS, NGO's and CFA's will benefit all the stakeholders involved. Such partnerships will ensure a balance between forest conservation and socio-economic empowerment of communities adjacent to forest thus contributing to achievement of sustainable development.

The need to increase forest cover and reduce forest destruction and degradation has been recognized in Kenya (DRSRS & KFWG, 2006). The Government has recognized the critical role to be played by forest-adjacent communities in ensuring that tree cover in the country increases from the current 2% to the recommended 10% (MENR, 2007).

Community involvement is critical for sustainable forestry management and conservation programmes. The county consultations noted that Community Forest Associations and the closely related Water Resources Users Associations are important for effective management of forest resources (Stiebert, Murphy, Jason, & McFatridge, 2012).

With the participation of CFA's in forest in co-management of forests the community members are set to gain from the utilization of non-wood forest products as well as the commercial sale of forests under concession. The CFA's will provide a forum for community members to participate in conservation activities and exchange ideas on best practices and green enterprises. These activities will contribute to growing the economy of the country and hence raising the GDP of the country to double digits.

1.8 SCOPE AND LIMITATIONS

The study focused on the community within 1km radius of the forest reserve in areas within Kitiri and Kinja sub-locations all Mutarakwa Forest Station in Kinangop Sub-county of Nyandarua County. It was also be concerned with the institutions involved in management of the North Kinangop Forest Reserve. It was aimed at assessing the opportunities and challenges that exist for CFA's in improving the socio-economic status of residents in the area. This was assessed by evaluating the purpose and objectives of the CFA's, what they are doing to improve the livelihoods of community and the challenges they face.

The study was limited in that it will rely on sampling techniques to get data and hence may not be inclusive of the whole population. Accessibility of some of the areas of study was difficult due to bad roads especially in rainy weather. Language was also a barrier although it was in some instances overcome by using Swahili.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

Forests play an important role in Kenya's economy in terms of providing fuel, timber, jobs and other valuable products such as fibers, medicinal plants, wild foods (such as berries, roots and syrups), plant dyes, arts and crafts materials, resins and saps. They also protect water, soil, air and biodiversity and provide valuable environmental services such as sinks for carbon dioxide, habitat for wildlife, and recreational and sacred sites. (Ayoo, 2007)

The forests in Kenya have been declining rapidly leading to adverse impacts on biodiversity, climate, rivers and streams, wildlife, and human populations. (Ngigi & Tateishi, 2004) estimated that the rate of forest loss in Kenya was about 15,000 per year. According to (FAO, 2005) Kenya had 3,640,000ha of land under forests in 1990 which declined to 3,504,000ha in 2000 and to 3,422,000ha of land in 2005.

The factors that underlie the rapid deforestation include the increased demand for agricultural land due to increases in human population combined with growing per capita consumption, widespread poverty, and the way the forests are managed (FAO, 2005) The seriousness of deforestation in Kenya is evident from the fact that the country is listed by Bryant et al. (1997) as being among the developing countries with no remaining large tracts of undisturbed biologically intact forests.

This chapter articulates the concept of Participatory Forest Management and its application in conservation of forests as implemented in Kenya. It also focuses the benefits and challenges of PFM. It concludes by reviewing the policy and legal framework that are the pillars of this strategy.

2.2 PARTICIPATORY FOREST MANAGEMENT

Participatory forest management is considered in wider perspectives of Community Based Natural Resource Management approach which is motivated by the recognition of the fact that

when communities benefit from natural resources they will have a strong incentive to protect those resources and use them sustainably. The CBNRM approach works through partnerships between the government and local communities with the local communities having a greater say in decisions pertaining to the management of natural resources and also a greater share of the benefits from these natural resource (Ayoo, 2007).

(Warah, 2008) defines participatory forest management (PFM) as an arrangement where key stakeholders enter into mutually enforceable agreements that define their respective roles, responsibilities, benefits and authority in the management of defined forest resources

The level of community participation in the management of a protected area is important for both environmental outcomes and sustainability. Protected areas that permit sustainable forest use have been shown to be more effectively conserved than strictly protected ones according to studies carried out by IEG using global satellite data on forest fires as an indicator of deforestation to assess all officially recognized tropical forest protected areas. The study compared the fate of forest plots inside protected areas with similar but unprotected areas. The results showed that although strictly-protected areas are effective, areas that permitted sustainable forest use were even more effective (Nelson & Chomitz, 2009).

PFM is therefore increasingly being employed as an approach through which to achieve the sustainability of threatened forests and conservation of biodiversity. This is achieved through a process of inclusion, equity, and democratization of governance of the forest resources (Amanor, 2003).

2.2.1 Theories supporting PFM

(Agrawal & Ostrom, 2001) postulate that in instances where the incentives are not compatible with the challenges faced by rights holders (including their livelihoods needs), for example when resource users and/or resource managers are denied the right to revenue from forest resources, their motivation to invest time and resources in sustainable management will be reduced

(Ostrom, 1990) identified the elements necessary for successful natural resource management. These elements have been used as indicators in attempting to assess the institutional performance of CFAs. These elements include access to low-cost conflict resolution mechanisms, the ability to define and change rules related to resource use, the ability to determine who can or cannot use/harvest resources, the ability to monitor rule conformance and sanction violations, and local leadership. Viewed together, these elements affect the incentives of resource users, and will influence their perceived benefits as well as their commitments to finding joint solutions to shared resource problems.

There is evidence that inequitable distribution of benefits among individuals that hold joint rights can destabilize group rights. Threats to group tenure security may also originate from within the groups themselves (Mogoi, Obonyo, Ongugo, Oeba, & Mwangi, 2012).

For example, the individualization of collectively-held group ranches was partly driven by group members' need to secure their and their families' claims against appropriation by influential individuals from within the community (Mwangi & Dohrn 2008; Mwangi 2007).

2.2.2 Development of Participatory Forest Management in Kenya

The Forest Department was created in 1902 by the colonial government. The department alienated most prior existing community-managed forests. For most of the century forest policies, both before and after independence in 1963, focused on insuring Forest Department control over resources. After independence, a series of donor-funded forestry programs focused on afforestation and reforestation on farms, with the goal of alleviating fuel shortages. Forest Department lands were managed with no consultation outside of the agency. Conflicts increased in the late 1980s between communities, who needed fuel wood from neighboring forests, and the agency (Ongungo & Njuguna).

Broad decentralization began in 1983 with the establishment of the “District Focus for Rural Development” system, which delegated responsibility for numerous rural development projects to the local districts. However, policymaking, planning, and funding decisions largely remained

centralized within government ministries. Local districts (and their associated county councils) had limited accountability to local people (Omondi & Omosa, 2002) .

The Forest Act of 2005 replaced the Forest Department with the Kenya Forest Service (KFS), a semi-autonomous body managed by a board made up of representatives from various central government ministries. Under the Act, the KFS is expected to devolve powers to the private sector and to forest conservation committees and community forest associations (CFAs). Community participation, achieved primarily through CFAs, and integrated management of forests are central principles motivating the new policy (Ongugo P. , Mogoi, Obonyo, & Oeba, 2008).

2.2.3 Benefits of Participatory Forest Management

The inclusion of communities in forest management is expected to enhance biodiversity conservation, the equitable distribution of benefits, conflict resolution, poverty reduction, and sustainable use (Kallert, Mehta, Ebbin, & Litchenfed, 2000).Such results are strongly influenced by the mode of participation adopted by the PFM implementation process, and its progress is uneven across Africa (Yemshaw, 2007).

Studies by (Matiku, Ogol, & Mireri, 2011)showed that households from the PFM zones derive net positive benefits from the forest due to PFM supported nature-based enterprises (beekeeping, butterfly farming, mushroom farming, ecotourism and forest related employment) as compared to non-PFM zones where households incurred a net loss. The studies also showed that households next to the forest receive the most forest benefits. As such since PFM targets forest adjacent dwellers, households next to the forest in PFM zones thought the forest is an asset to their livelihoods.

PFM in Arabuko-Sokoke Forest is not only a benefit to forest conservation and ecosystem services but also an asset to households in line with Millennium Ecosystem Assessment (2005) (Matiku, Mireri, & Ogol, 2012).

2.3 COMMUNITY FOREST ASSOCIATION

2.3.1 Formation of CFA's

According to the Forests Act (2005), section 46 (1), a member of a forest community may together with other members or persons resident in the same area register a community forest association under the Society's Act. According to section 46 (2), an association registered under section (1) may apply to the Director of Forest Service for permission to participate in the conservation and management of a state forest or a local authority forest in accordance with the provisions of the act. All of the important forest regions in Kenya, often referred to as the country's water towers, have at least one registered CFA. (Ongugo, Koech, Mbuvi, & Maua, 2009)

The associations are only registered if their objectives, composition of their management committees, election procedures and purpose for which their funds may be used are considered satisfactory (Ongugo P. O., Mogoi, Obonyo, & Oeba, 2008).

2.3.2 The role of CFA's

The Forest Act enables members of forest community to enter into partnerships with KFS through registered Community Forest Associations (CFA). Such agreements are applicable for both state forests and/or local authority forests. Local communities can therefore participate in protection, conservation, and management of a given forest area in accordance with the provisions of a management plan for the forest. (Ongugo P. O., Mogoi, Obonyo, & Oeba, 2008)

The Act also grants the Association some user rights on condition that these rights are not in conflict with the conservation of the forest. Some of the user rights established for these associations include collection of medicinal herbs, harvesting honey, harvesting timber or fuel wood, grass harvesting and grazing, collection of forest produce for community based industries, ecotourism and recreational activities, scientific and educational activities, plantation establishment through nonresident cultivation, contracts to assist in carrying out specified silvicultural operations, development of community wood and non wood based industries and other benefits that may be from time to time be agreed upon between an association and KFS.

2.3.3 Challenges facing CFA's

The implementation of the decentralization process seems mixed. The contribution of communities is mostly limited to protection and monitoring, with minimal decision-making power and limited access to the shared revenue accrued from the forest resources.

The communities are therefore burdened with most of the work with little benefits from the forest. The existing capacity of CFA's is yet to reach the necessary capacity required to reap maximum benefits from co-management of the forests. For example revenue currently collected from the forests does not benefit the communities because CFA's lack capacity to harvest timber and large companies still dominate timber harvesting. (Mogoi, Obonyo, Ongugo, Oeba, & Mwangi, 2012)

A study by (Ongugo, Koech, Mbuvi, & Maua, 2009) indicates that the major challenges faced by CFA's included lack of transparency among officials, failure of some members to contribute funds, sharing of benefits, and a dictatorial tendency among some of the leaders. Some specific challenges arising from conflict of interest sited during the study include; external interference, communal rights versus individual interests, the need to conservation versus exploitation and prevailing attitude versus required attitude. A difference exists between the ideal social situation and prevailing conditions. The perception of policy-makers and professional perception is different from community understanding of the group's objectives.

2.4 THE LINK BETWEEN SOCIO-ECONOMIC STATUS AND FOREST MANAGEMENT

The link between poverty and forests is a controversial one. The argument that poverty leads to resource degradation has been de-emphasized by empirical evidence that proves that the management responses of poor people can vary in relation to their welfare and that forest are as much threatened by wealth as by poverty. On the other hand forests can have both a positive and negative result in poverty reduction (Angelsen & Wunder, 2003)

However attempts have been made to link the two concepts together, (Angelsen & Wunder, 2003) denote that poverty is seen as a cause of forest loss and forest loss contributes to maintain or even increase poverty. This implies that economic development and poverty reduction should help improve forest conditions and vice versa, that development of forest resources can be a vehicle for poverty reduction.

In governance; devolving forest resource ownership and management to local communities and removing excessive regulations which discriminate against the poor is a concrete means for empowerment and increasing the political capital of the poor. Over-regulation of the use of forest resources and limited accountability of public officials encourage corruption which usually harms the poor. (European Forest Institute, 2003)

2.5 POLICY AND LEGAL FRAMEWORK

There are various policy and legislative framework both international and local that provide an enabling environment for the functioning of Community Forests Associations. At an international level these include inter alia, the global forest principles, the convention on biodiversity and millennium development goals. At the local level they include legislation such as the forest act, agriculture act, energy act as well as EMCA all of whose functioning is supported by the Constitution of Kenya 2010.

Global Forest principles

They are non-legally binding authoritative statement of principle 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 first principle emphasizes on encouraging forestry development by promoting participation of local communities, indigenous people, industries, labor, NGO's, forest dwellers and women in the development and planning of all

forest policies. These principles are important because they recognize the role of various all stakeholders in the sustainable management of forests.

The Convention on Biodiversity

The Convention on Biodiversity emphasizes the responsibility on nations in conserving their biodiversity and using their biodiversity in a sustainable manner. In addition, it notes that it is critical for nations to anticipate, prevent and attack the causes of significant reduction or loss of biodiversity at the source and as a result conserve ecosystems and habitats as a requirement for conservation of biodiversity.

Millennium Development Goals (MDG's)

These are international goals that came to be as result of the adoption of the Millennium Declaration by the United Nations General Assembly touching on development and poverty reduction. The goals of participatory forest management are anchored by several of these goal including poverty reduction, sustainable environmental management and global partnerships for development.

Kenya Forest Act (2005)

The Forests Act 2005, unlike its precursor Forest Act CAP 385, provides a framework and incentives for community and private sector involvement in the forestry sector.

Its goal is to “enhance the contribution of the forest sector in the provision of economic, social and environmental goods and services. Two specific objectives of the forest policy touch on activities of forest associations these include; contribution to poverty reduction, employment creation, and improvement of livelihoods through promotion of participation of the private sector, communities, and other stakeholders in sustainable use and conservation, and management of forests and trees; and contribution to sustainable land use through soil, water, and biodiversity conservation, tree planting, and the sustainable management of forests and trees) The Act provides for creation of CFA's and spells the nature of their collaboration with KFS as well as the various user rights accessible to CFA's.

The Act also imposes restrictions on concession processes for public forests, obligating environmental impact assessments prior to their being granted (Forests Act, 2005, Articles 4-5, 21 40 & 45).

The Environmental Management and Coordination Act (EMCA)

EMCA sets out principles to guide good environmental management and provides an institutional framework for its enforcement through the establishment of NEMA.

Section 50 of EMCA has a direct bearing on forests as part of Kenya's biodiversity. The Act takes into consideration the protection of property rights of local communities in biologically diverse areas and watershed protection. The requirement for specification of national strategies, plans and programs for conservation and sustainable use of natural resources are in line with sustainable forest management.

The Agriculture Act (Cap 318)

It is the principal legislation governing agricultural activities and is geared towards promoting agricultural development in Kenya. The long-term objective of the Act is to ensure the development of arable land in accordance with sound land management and husbandry practices, hence the emphasis on the need for the conservation of soil and its fertility.

The Act empowers the Minister for Agriculture to make regulations to prevent soil erosion and thus preserve the soil. For instance the Minister for Agriculture gazetted the Agriculture Farm Forestry Rules on 27 October 2009. The Rules are geared towards the establishment and maintenance of sustainable forests for purposes of water, soil and biodiversity conservation, and the protection of riverbanks, shorelines, riparian and wetland areas.

As stipulated in Section 48 of the Act, such regulations will prevent the clearing of certain parcels of land for cultivation and the drainage of land, as well as protect slopes and catchment areas, and preserve soil on ridges, slopes or valleys. By regulating the utilization of different categories of land in Kenya for various agricultural purposes, the Act strives towards sustainable utilization of land resources.

The Energy Act (2006)

The Act provides a framework on energy in Kenya and hopes to ensure that the relevant ministries, NGO's and other organizations address environmental problems associated with the supply and use of energy (charcoal and fuel wood). With the broad objective of ensuring adequate, quality cost effective and affordable supply of energy to meet the demands while protecting and conserving the environment the Act is in line with sustainable development. The Act among others aims to promote energy efficiency and conservation as well as prudent environmental, health and safety practices.

The Kenya Forestry Master Plan

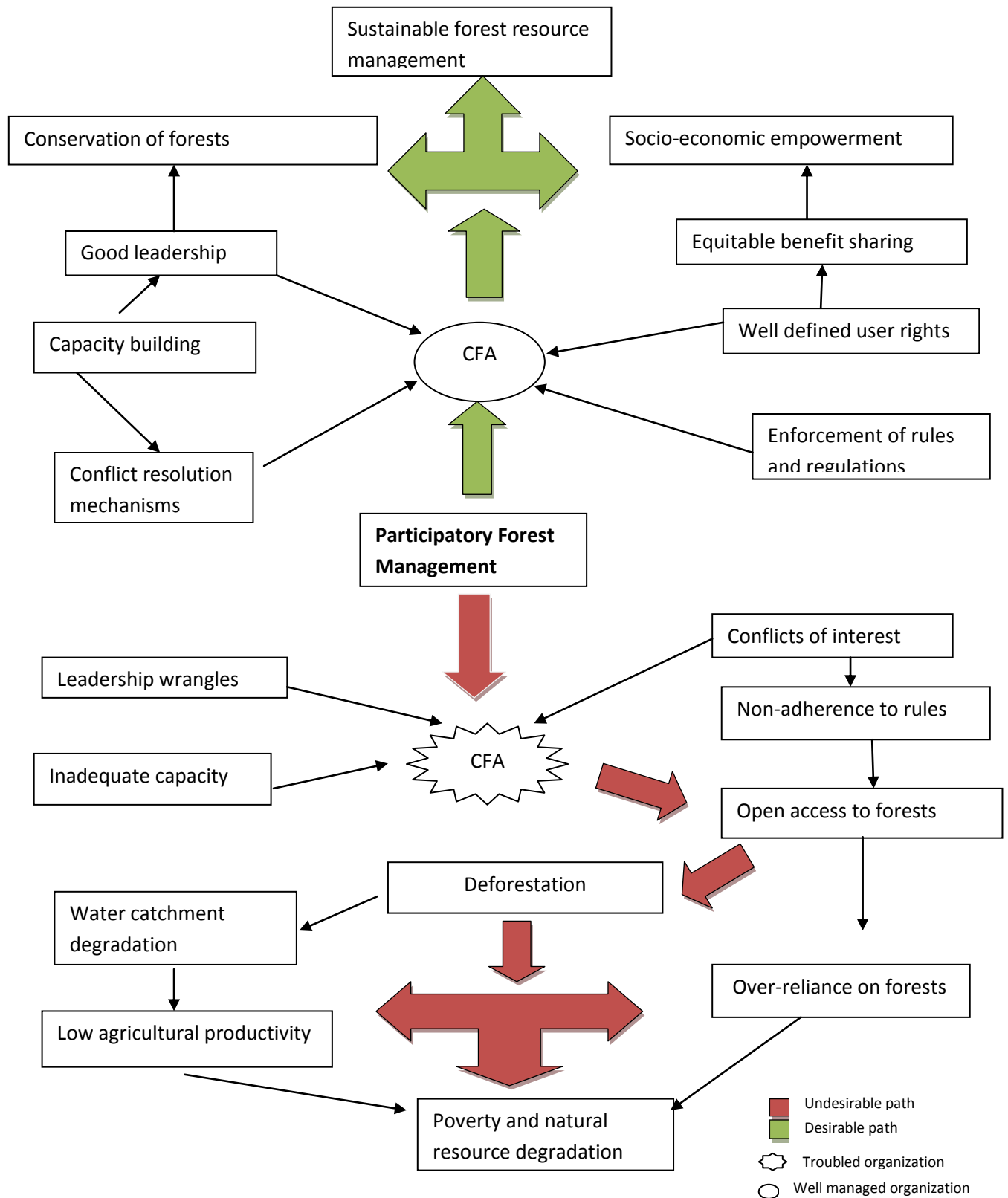
It sets out national goals, objectives and strategies for the forestry sector. On indigenous forests, the master plan objective is to conserve the soil, water, biodiversity and growing potential for these forests and put them under effective management so that they yield a sustained flow of products and other benefits.

2.6 CONCEPTUAL FRAMEWORK

The success of PFM is relies on the availability of incentives for the community. Various factors affect the incentives such as access to low-cost conflict resolution mechanisms, the ability to define and change rules related to resource use, the ability to determine who can or cannot use/harvest resources, the ability to monitor rule conformance and sanction violations, and local leadership. If these elements are present the CFA is strengthened and able to contribute to socio-economic empowerment, forest conservation and eventual sustainability. This is the desirable path.

However if these elements do not exist then the CFA members lack incentives and the CFA is laden with many challenges that impact on the functioning of the CFA. These coupled with the fact that CFA members have access to forest resources may lead to deforestation of forests which are also water catchment towers. The degradation of forests further exacerbates poverty by making livelihoods worse off and causing over-reliance on forest resources which is unsustainable. This is an undesirable path.

CONCEPTUAL FRAMEWORK



CHAPTER THREE

AREA OF STUDY

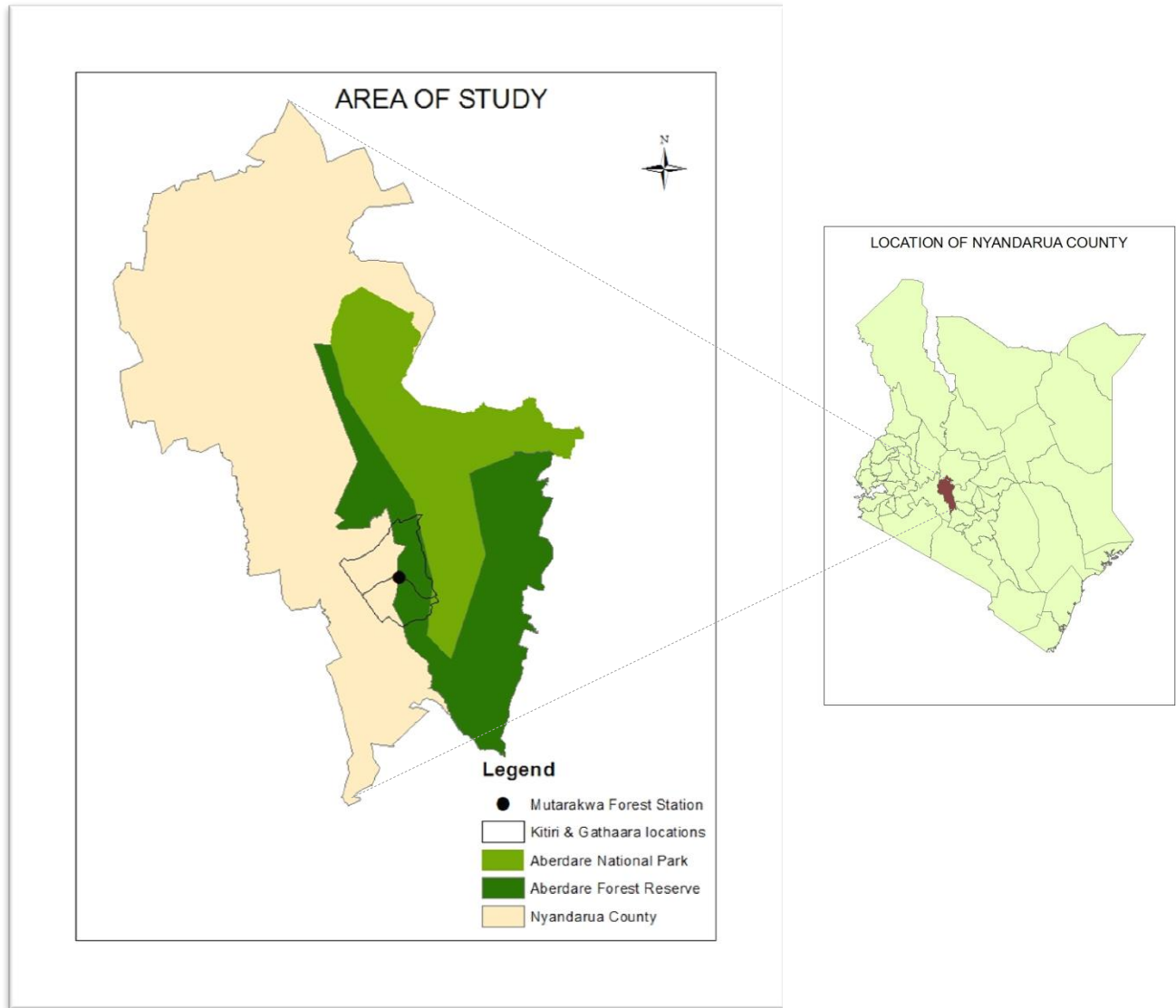


Figure 1; Map showing the area of study

Introduction

This chapter provides a description of the area of study in terms of physical and socio-economic characteristics. These characteristics are essential because some of them have a direct or indirect impact on the variables of the study while others explain the behavior of variables in the study.

3.1 PHYSICAL SET-UP

3.1.1 Location and extent

Nyandarua County is located in the central part of Kenya. The county has an area of 3245.2km² lying between latitude 0°8' to the North and 0°50' to South and between 35° 13' East and 36°42' West. The county borders include several counties; Laikipia to the North, Nyeri to the East, Kiambu to the South, Murang'a to the South East and Nakuru to the West. Kitiri and Gathaara locations are both in North Kinangop division which is in the south of the county and is boarded by Aberdare Forest to the East.

3.1.2 Topography and drainage

The County was affected by volcanic and faulting which gave rise to major land forms, the Great Rift Valley to the west and Aberdare ranges to the east. The highest point of the Aberdare ranges is 3999m above sea level. There are steep slopes that have undergone great transformation through weathering creating shallow valleys and gorges. Due to the topography of the area rivers flow in a radial pattern from the mountain peaks, flowing down the slope along the valleys and gorges that cut down the for forest area.

The area has three permanent rivers, Turasha, Kinja and Laigiri with several streams including Karoroha, Karichiura, Kachochoria and Wainoro. All these form part of the Malewa River system which drains into Lake Naivasha.

3.1.3 Geology and soils

The geology of Nyandarua comprises of igneous rocks, volcanic, and alluvium. Most rock systems have lines of weaknesses occasioned by faulting which allows porosity and easy percolation. The soils in the County are of volcanic origin and vary in both fertility and distribution. They fertility of the soil ranges from moderate to high.

The soils of Kinangop in areas adjacent to the Aberdare forest can be described as well drained, very deep, dark reddish brown to dark brown, very friable and smeary, clay loam to clay, with thick acid humic topsoil; in places shallow to moderately deep and rocky. As the distance from the forest increases towards the plateau they become imperfectly drained, deep, very dark grayish brown, mottled, firm clay, abruptly underlying a thick topsoil of friable silty clay loam. (Jaetzold, Schmidt, Hornetz, & Shisanya, 2006)

3.1.4 Climatic conditions

The area experiences moderate to low temperatures. The highest temperatures are recorded in the month of December, with a mean average of 25⁰C while the lowest is recorded in the month of July, with recorded low temperatures of -1.3⁰ C. The cold air rises during clear nights on the moor lands of the Aberdare Ranges flows down the Plateau. The valleys west of the plateau occasionally provide outlet to the stream of cold air. The temperatures in the valleys fall to between 1.2⁰C and -1.30C which last for few hours before sunrise. Rain falls in two seasons. Long rains start in March and end in May with a maximum rainfall of 1600 mm. The short rains are received between September and December and have minimum rainfall of 700 mm. The rainfall intensity varies according to the location. Areas near the Aberdare slopes receive sufficient rainfall with the plateau receiving scanty and erratic rainfall.

3.2 ECOLOGICAL SET-UP

3.2.1 Vegetation

The vegetation in North Kinangop forest comprises of diverse types including, indigenous forests, bamboo, exotic plantations, shrubs, grassland, herbs and other forms of vegetation. The type of vegetation varies with topography. The area below the national park consists of afro-alpine forest then an afro-montane forest comprising of indigenous forests, bamboo and natural cedar stands. Plantation forests, some wetlands are found in the lower fringes adjacent to the farmlands. Common indigenous tree species include *Podocarpus falcutus*, *Juniperus procera*, *Prunus africana*, *Croton macrostachyus*, *Podocarpus latifolia*, *Hagenia abyssica*, *Ekebergia rueppelliana*, *Olea africana*, *Polycias kikuyuensis*, *Vernonia jugalis*, *Trichilia volkensii* and

Cussonia spicata. The plantation stands are composed of exotic softwood tree species namely *Pinus patula*, *Cupressus lusitanica* and *Eucalyptus saligna*

In areas outside the forest most of the natural vegetation has been cleared for agriculture. Intensive small scale agriculture is practiced in these areas although some attempts of farm forestry have been made.

3.2.2 Wildlife

According to Butynski (1999), the Aderdare National Park alone has over 770 species of vascular plants. The Aderdare Conservation Area comprises ten vegetation zones with over 270 species of birds. The ecosystem also has 50 to 60 species of mammals, including the black rhino, giant forest hog, bush pig, golden cat, bongo, African elephant, and black and white colobus monkeys, among others. These attract about 25,000 – 60,000 tourists annually, especially to the famous Treetops and the Ark as well as trout fishing lodges (Economic Survey, 2009).

3.3 ECONOMIC SET-UP

3.3.1 Agriculture

Kinangop falls under agro-ecological zones UH 1-2. Agriculture is the main economic activity in the county. The main crops grown in the area of study are potatoes, maize, cabbages, carrots and other vegetables. There are also a proportion of farmers who grow cow peas for export. These crops are not exclusively meant for subsistence as they also account for significant income for most of the households.

Most of the land in the area consists of small farms which were originally designated as settlement schemes in the 1960's. Later some other people bought and privately or with the help of land buying companies. The farmers in these areas mostly practice mixed farming. Land sizes in both the low and high potential zones are experiencing subdivision into smaller parcels and low productivity due to overuse of the land.

Livestock farming is also a major activity in the area and the main animals reared are indigenous and exotic species of cattle, goats, sheep, rabbits and poultry. Dairy farming is the dominant

enterprise in the livestock subsector. Bee keeping is also being practiced by several farmers in the region.

3.3.2 Forestry and Agroforestry

3.3.2.1 Main Forest types and size of forests

Total gazette forest in North Kinangop 6,811.5 ha. The main forest products are Livestock fodder (grass), timber, poles and fuel wood. These are both from gazetted and un-gazetted forests. Farm forestry is also practiced in some farms comprising the bulk of un-gazetted forests. About 57.6 % of the households in the county use fire wood as cooking fuel and 28 % use charcoal as cooking fuel. There is, therefore, need to explore more alternative sources of energy in order to sustain and increase the county forest cover.

3.3.3 Tourism

One of the main tourist attraction sites in Nyandarua County is the Aberdare National park. North Kinangop Forest Reserve forms a buffer zone to the park. Several tourism circuits on route to Mutubio Gate of the Aberdare National Park criss-cross Kinangop. The forest reserve has potential to be exploited for ecotourism, mountaineering, camping and nature trails among other recreation activities.

There is evidence of the pre-colonial and colonial-times settlements can be located in Kinangop. These sites hold great tourism potential that can be exploited by Community Based Organisations such as CFA's who also preserve these relics.

3.4 SOCIAL SET-UP

3.4.1 Poverty

The Kenya Integrated Household Budget Survey, 2006 categorized 43% of the rural population and 49% of the urban population of Nyandarua County as poor. In urban areas, high unemployment especially among the youthful population push majority of them into anti-social vices especially excessive consumption of illicit brew. Low profitability in the agricultural

sector, heavy reliance on rainfall agriculture coupled by shocks in the weather patterns, and the increase in sub-division of land into small and uneconomical sizes are thought to be the main contributors of rural poverty. Female headed households who comprise of 36 % of total households in the county are expected to be made worse off as a result of high poverty incidence. This is because of traditional practices that marginalized women economically.

Socio-economic empowerment is a crucial aspect in Participatory Forest Management. Reducing poverty is one of the goals of CFA's as a way to empower the community to manage forest resources sustainably.

3.4.2 Education and Literacy

Nyandarua County has a total of 508 primary schools, 185 secondary school, 14 polytechnics and one university branch. 95.3% of the county population aged 6-13 years are in primary school where the teacher pupil ratio is 1:40. Enrolment to secondary school is 50.3% of population aged 14-17 years with a teacher/student ratio of 1:28. The drop-out rate in secondary school is 5.8%.

86.3% of the county population can read. The population that can write is 85.2% while the proportion that can read and write is 83.8 %. This implies that about 13.7% of the population cannot. Education and literacy levels influence the knowledge, skills and attitudes of people towards community based natural resource management. The level of education can also be used as an indicator of the socio-economic status of a population.

3.5 INFRASTRUCTURE

3.5.1 Energy Access

Main source of cooking energy is firewood while electricity covers 10.5 % of the county and is mainly found in urban centers of Mairo-inya, Ol'kalou, Njambini and Engineer and several trading centers located in different parts of the county. The total number of households using electricity for cooking is 0.2 %, while 77.8 % of household use firewood as the main source of cooking fuel. The proportion of households using charcoal is 19.3 %, paraffin is 1.4%, and biomass residue is 0.3%. Households using firewood for lighting are 0.3%; paraffin 82.7 %,

electricity 10.5 %, and solar 6.0 %. The dependence on firewood for both cooking and lighting is an indicator of the high demand for wood in the area some of which is sourced from adjacent forests.

3.5.2 Housing

Most of the houses in the county are walled by use of timber which constitutes 42.9% of the total houses. Other walling materials include: mud/wood 33.4 %, stone 13.5 %, corrugated iron sheets 3.1 %, mud/cement 3 %, brick/block 2.6 % and tin 0.1 %. Majority of the houses in the county are roofed by use of corrugated iron sheets (at 95.1 %) while asbestos and tiles account for 2 and 0.6 % respectively. Most of floors are of earth surface at 74.3 % and cemented at 23.5 %. Housing in any particular area is an indicator of the Socio-economic status of the residents of the area.

3.5.3 Transport and communication

Nyandarua County has adequate road network though most of them have never been tarmacked due to inadequate funds while the existing ones are in poor condition. The county has a total of 3,400 Km of road of which 224 Km is bitumen, 525 Km is gravel surface and 2,651 Km is earth surface. The earth roads are impassable during the rainy season while in many cases the gravel roads are cut off. This is a frequent phenomenon noting that the county has two heavy rainy seasons in any given year and the poor alignment soils (black cotton soils). The poor road conditions in some interior areas of Kinangop have affected the marketing of agricultural produce particularly during the rainy season. Given that agriculture is the mainstay of most of the residents the loss of produce due to bad roads is bound to affect their economic status leading to some residents opting to turn to trade in illegal forest products such as charcoal and wood which is considered more lucrative.

3.6 DEMOGRAPHY

3.6.1 Population Size and Composition

Population in the county stood at 596,268 as at the last national population census of 2009. This comprised of 292,155 males and 304,113 females. There is no significant difference between the

male and female population as there are 104 females for every 100 males. Kitiri sub-location is estimated to have a population of 8218 with a population density of 77people per km² while Gathaara sub-location is estimated to have a population of 6094 with a population density of 99 people per km².

CHAPTER FOUR:

METHODOLOGY

Introduction

This chapter discusses the methodology that was to be employed in carrying out the research project. This includes the nature and sources of data to be collected, sampling methods to be used and the methods of data analysis and presentation to be employed.

4.1 RESEARCH DESIGN

This research is a descriptive survey aimed at assessing the purpose of CFA's, their challenges and opportunities in socio-economic empowerment of residents of Kinangop, Nyandarua County. To achieve the objectives of this study, both quantitative and qualitative data was collected. The quantitative data was necessary to help quantify the number of respondents who provided a particular response in relation to the objectives. They were also used to obtain information such as the perceptions of the community in relation to the activities of CFA's in Kinangop. Qualitative data also encompassed the observations made with regard to the quality of the environment.

4.2 NATURE OF DATA

The nature of data collected to achieve each objective is summarized in (Table 1) below

Objective	Nature of data	Sources of data	Type of data collection technique
To assess the purpose of CFA's in Kinangop Nyandarua County.	Secondary and primary data	Management plans, reports and CFA officials	Interviews and literature review

To evaluate the extent to which CFA's have achieved their objectives in Kinangop Nyandarua County	Primary data, Secondary data	CFA officials, KFS officer, ground observation, management plan	Administer questionnaires and interviews, observation guide, literature review
To assess how CFA's have impacted on the socio-economic status of community in Kinangop Nyandarua county.	Primary data	Local community, CFA officials, KFS officers	Administer questionnaires and interviews, photographs
To assess the challenges that CFA's in Kinangop County are facing in improving the livelihoods of community in Kinangop Nyandarua County	Primary data	Local community, KFS officers	Administer questionnaires and interviews, observation guide

Table 1: Nature of data

4.3 SOURCES OF DATA

4.3.1 Sources of data

The sources of primary data included households adjacent to the forest that were not necessarily members of CFA's, Officials of CFA's, KFS Officials including the area forester and members of local NGO's.

The sources of secondary data will be books, publications, journals, reports, research papers, geographic maps, Acts of Parliament and websites.

4.4 RESEARCH INSTRUMENTS

Research instruments used include;

Household questionnaire

The questionnaire had closed and open ended questions. Closed questions were used to obtain information like income, membership in CFA, age bracket among others while open ended questions were used to obtain the challenges facing CFA's in socio economic empowerment. (Refer to appendix 1)

Oral interview guide

This was used to guide the researcher in interviews with government officers at KFS and NGO's including IMARISHA. (Refer to appendix 2)

Observation Guide

The researcher observed the user rights that the CFA's has and the challenges they face. (Refer to appendix 3)

Photography

Photographs were taken of activities being done in the area of study.

Literature review

Different books and reports such as the North Kinangop (Mutarakwa) Participatory Forest Management Plan were reviewed in search for secondary data.

4.6 SAMPLING FRAME AND SAMPLING METHODS

A sampling frame of 30 households was used. This number was considered good since only the two sub-locations are adjacent to the forest reserve. 15 questionnaires were administered in each of the sub-locations.

Simple random sampling was used to administer the questionnaires in the two sub-locations adjacent to the forest reserve. These households were randomly selected following various transects such as the roads near the forest and the boundary demarcating the forest reserve.

Purposive sampling was a key sampling technique targeted at specific institutions such as NGO's and government officials. It was also used in the case of CFA officials from whom specific and authoritative information will be required.

Snowballing technique was also used where CFA officials referred the researcher to other officials and organizations whose response was important in understanding the association's responsibilities and roles.

4.7 DATA ANALYSIS AND PRESENTATION

This was done through generalizing the sample results to the wider population in order to estimate the population characteristics. Descriptive statistics was employed to analyze the data collected from respondents. Analysis also incorporated the implications of various statistical findings as well as the perceptions of the respondents. Presentation was done in form of tables, bar graphs and pie charts as will be seen in the next chapter.

CHAPTER FIVE:

RESEARCH FINDINGS AND DATA ANALYSIS

5.1 Introduction

This chapter focuses on the research findings and analysis of data collected from households, institutions and observation in the field and from secondary sources like the Participatory Forest Management Plan. A total of 30 questionnaires were conducted in various homesteads chosen randomly using roads and the forest line as transects. The researcher used Statistical Package for Social Sciences (SPSS) in analyzing data from questionnaires. Interviews were conducted in three key institutions concerned with co-management of the forest. These were the Kenya Forest Service (KFS), North Kinangop Community Forest Association (NOKICOFA) and Imarisha Program in Naivasha.

Kenya Forest Service was established in 2007 as a state corporation after the enactment of the Forest act 2005. It was established to conserve, develop and sustainably manage forests for socio-economic development in Kenya. The KFS management structure is composed of 10 conservancies that are ecologically demarcated, 76 zonal offices, 150 forest stations and 250 divisional forest extension officers.

North Kinangop (Mutarakwa) Forest Station is charged with the responsibility of managing the North Kinangop Forest Reserve in collaboration with the local CFA. The Forest Act 2005 allows for community participation in co-management of forests with KFS. This is done through entities known as Community Forest Associations. The CFA's are required to prepare Participatory Forest Management Plan. The PFMP aims at minimizing conflicts with forest adjacent communities and other stakeholders, creating an opportunity for community to contribute towards sustainable forest management and supporting sustainable forest-based livelihoods in rural communities.

NOKICOFA is a registered Community Forest Association. NOKICOFA is the main stakeholder in co-management of the North Kinangop Forest Reserve. It came into function in

2009 with the signing of their agreement with KFS and the commissioning of the North Kinangop (Mutarakwa) Participatory Forest Management Plan. The Association brings together various groups of people concerned with PFM activities. These include a protection committee, fuel wood collection groups, United Charcoal Burners Association and beekeeping groups among others.

Their role in conservation is crucial especially in protection of the forest resources from depletion through assisting in patrols, enhancing community awareness on the importance of forests and assisting in reporting and putting off forest fires. They have established tree nurseries and beekeeping as part of their IGA's. They are also involved in tree planting activities in the forest and along riverbanks. The members of the association also practice farming alongside tree planting in the recently established PELIS program.

NOKICOFA has several officials who form the leadership of the association. Then association has identified various user rights in the forest reserve. They have established various rules and regulations which guide their use of these rights.

Imarisha is a program which was created to tackle the degradation of Lake Naivasha and its catchment and put future development into a sustainable footing. This government initiative aided by donor support such as the HRH Prince of Wales' International Sustainability Unit, aims to address the economic and environmental challenges facing the catchment of Lake Naivasha in an integrated and concerted way. It is built on partnerships with the public and private sectors and the civil society. It currently undertakes conservation and community support projects with the approval of a board which runs the initiative.

As part of the community in the Lake Naivasha catchment area the program partners with NOKICOFA in capacity building programs and offers technical support for catchment conservation initiatives such as creating improved tree nurseries. They encourage the association and its members to write proposals for their projects to be reviewed by the board for prospective funding.

The initiative is however constrained by inadequate staff to work with the community and the challenges inherent with community based organizations such as leadership wrangles.

5.2 Bio-data

It is necessary to describe the characteristics of the respondents as they play a major role in the main objective of this study. Of the 30 respondents, 60% were male while 40% were female (see figure 2 and table 2).

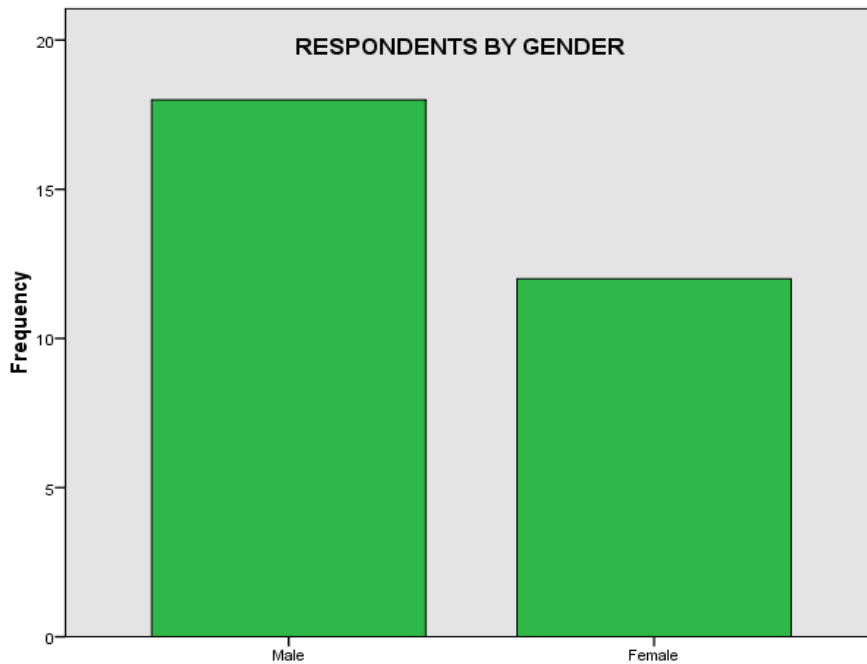


Figure 2: Respondents by gender

GENDER	TOTAL	PERCENTAGE
Male	18	60
Female	12	40

Table 2: Respondents gender; number and percentage

It was observed that men were more readily available for administration of questionnaires of the households.

Respondents' Age

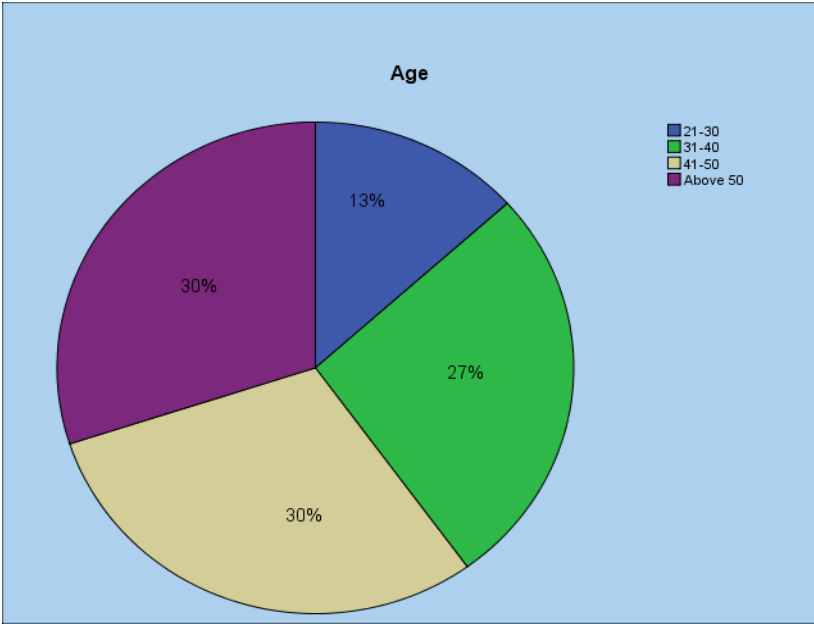


Figure 3: Respondents age

Most of the respondents surveyed were above 41 years which represents 60% of the total number of respondents. The number of youth (people between 15-30 years) forms the minority of respondents at less than 40%.

Level of education

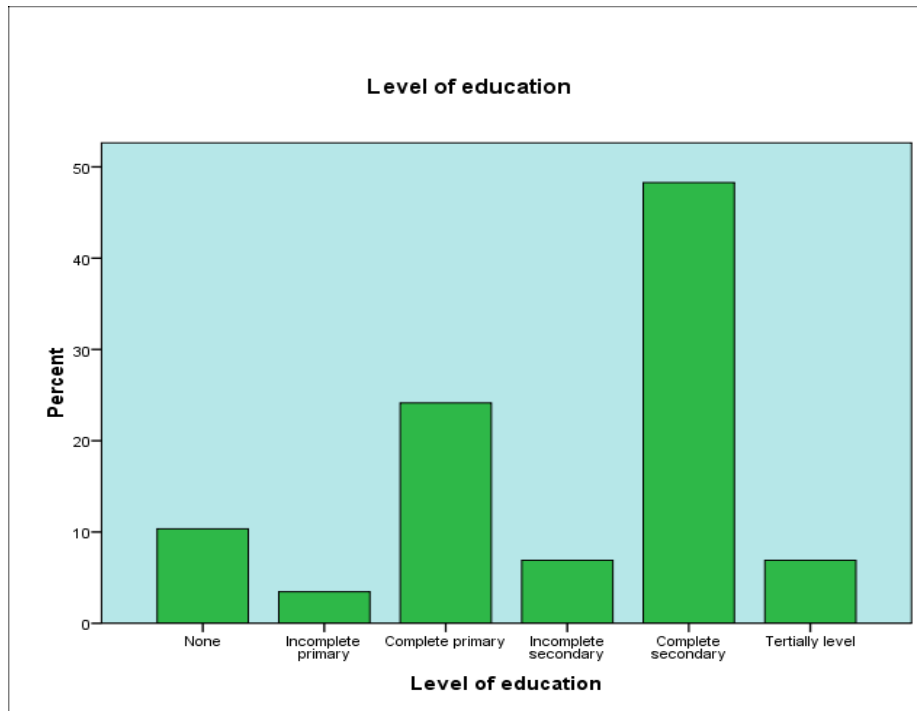


Figure 4: Respondents level of education

As shown in (figure 4) above 48% of the respondents have completed secondary school while 30% have gone up to or beyond primary level education. Only 7% of the respondents have gone up to tertiary level. However 10 % of the respondents did not go to school.

This indicates that most of the people who form CFA's have received some knowledge and skills on the value of conservation of natural resources especially forests in both primary and secondary school. It also means that there are people with adequate capacity within the community to lead CFA's and come up viable income generating ideas.

Income level of respondents

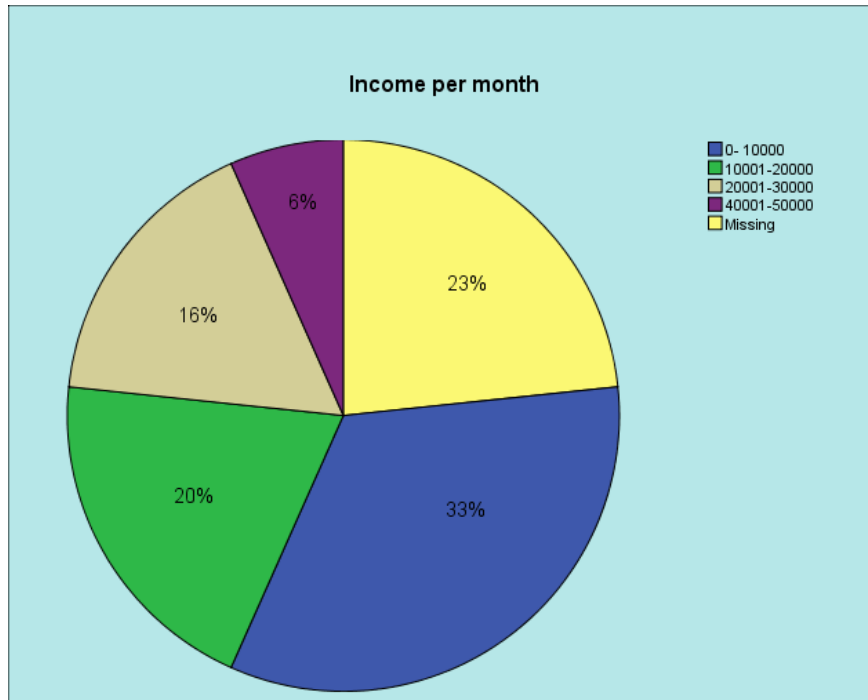


Figure 5: Respondents income per month

3% of the respondents earn less than Ksh10, 000 per month, 20% of the respondents earn less than Ksh 20, 000, 16% of the respondents earn less than Ksh 30, 000 and 6% of the respondents earn between Ksh 40,000- 50, 000. (see Figure 5) While a provision was made for respondents earning over Ksh 50, 000 per month there was no response for the same. 23% of the population did not provide information on their income either because they were not willing to divulge their income or could not quantify their earnings on a monthly basis since most they are farmers relying on annual or bi-annual harvests of food crops.

These findings indicate that most of the residents in the area of study have relatively low incomes. The poverty rate in the rural areas has been indicated to be at 49%. This is an indication that measures to economically empower the community such as promotion of other income generating activities besides farming need be encouraged to reduce poverty. The low incomes may also trigger residents to engage in illegal logging activities to earn an extra income.

5.3 PURPOSE OF CFA

The purpose of NOKICOFA is expressed in the North Kinangop (Mutarakwa) Participatory Forest Management Plan which guides the co-management of the forest. The purpose of NOKICOFA is to adopt an integrated approach in the conservation and management of North Kinangop Forest to meet the twin goals of socio-economic development and environmental conservation.

Through the PFMP, NOKICOFA seeks to improve the livelihoods of the local communities through promotion and implementation of nature based IGA's which will result in employment creation and increased incomes.

NOKICOFA also seeks to improve the water catchment functions of the forest through protection and rehabilitation of degraded areas. All these will give due consideration to biodiversity conservation.

5.4 ACHIEVEMENT OF OBJECTIVES

NOKICOFA derives its objectives from the management objectives outlined in the PFMP which are to;

- Contribute to poverty reduction, create employment, improve livelihood through sustainable use and contribute to the conservation and management of forests and trees
- Contribute to sustainable land use through soil, water and biodiversity conservation and tree planting through management of forests and trees
- Promote participation of private sector, communities and other stakeholders in forest management to conserve water catchment areas, create employment, reduce poverty and ensure sustainability of the forest sector
- Promote farm forestry to produce timber, wood fuel and other forest products
- Promote forest extension to enable farmers and other stakeholders to benefit from forest management approaches and technologies

The PFMP outlines various management programmes to be implemented by various stakeholders within a 5-year time frame. The Community Conservation and Development Programme is part of the management programmes and outlines various objectives, strategies to be used and activities to be implemented by NOKICOFA in partnership with various stakeholders. It is on the basis of the Community Conservation and Development Programme that the researcher will evaluate the extent to which NOKICOFA has achieved its objectives. The evaluation is based on data obtained from interviews with the Forester, North Kinangop Forest Station and NOKICOFA officials.

Objective	Strategy	Activities	Progress	Remarks
To promote farm forestry and reduce dependence on gazette forests	To produce forest products from the farms and rational use of forest resources	Creation of awareness on farm forestry	In progress	KFS conducts occasional training for CFA members
		Establishment of on farm tree nurseries	In progress	A few CFA members have started tree nurseries on their farms
		Establishment of woodlots	Yet to start	
		Promotion of energy saving jikos	In progress	CFA members are encouraged to acquire energy saving jikos
To alleviate/reduce poverty	To promote nature based IGA's	Beekeeping	In progress	Beehives provided by WWF. 1 of 4 groups succeeded
		Horticulture	Yet to start	Horticulture has yet to be encouraged as group initiative although some individual members do practice it.
		Sericulture (butterfly farming)	Yet to start	
		Herbal medicine	In progress	Some individual group members harvest herbs but have to adhere to set rules. No group established yet
		Aquaculture	Yet to start	
		Value adding	Yet to start	
		Zero grazing	Yet to start	Initiatives to encourage zero grazing are yet to start although individuals practice zero grazing on their own volition
		Cottage industries	Yet to start	
		Tree nurseries	In progress	NOKICOFA has established tree nurseries. They sell

				tree seedlings to KFS to plant in the forest
		Eco-tourism	Yet to start	Some potential ecotourism sites have been identified
To enhance soil and water conservation	To rehabilitate water catchments and conserve riparian areas -restoration of hilltops and degraded sites in farmlands	Planting of indigenous tree species on catchments, hilltops, quarries and riparian areas	In progress	NOKICOFA has participated in tree planting along the banks of R. Kinja
		Establishment of appropriate soil and water conservation structures	Yet to start	Training and capacity building at the CFA level is yet to be established
Plantation establishment	PELIS	Allotment of shambas	Already completed	Plots allotted to the community members in September 2013
		Timely land preparation	In progress	Individual members are now planting food crops
		Planting and protection of young seedlings up to 3 years	Yet to start	A period of 3 years has to lapse before tree seedlings are planted(see plate 1)
		Protection against fire, humans and livestock	In progress	Protection of the forest reserve has been on-going aided by the protection committee of the CFA
To enhance forest protection	Patrols and enforcement	Community scouts to prevent illegal activities	In progress (continuous)	A protection committee exists within the CFA to assist KFS in patrol
		Fire fighting	In progress (when necessary)	CFA members are called upon to put out fires
		Maintenance of access roads	In progress (when necessary)	CFA members are called upon to assist in road maintenance when necessary

Table 3: Progress of achievement of objectives



Plate 1: A PELIS plot in the neighboring Geta Forest

5.5 CFA'S IMPACT ON SOCIO-ECONOMIC STATUS

Community Forests Associations are the entities through which community members enter into co-management agreements with KFS. Membership in CFA grants individuals certain user rights to the forest which if well utilized can benefit communities and individuals socio-economically

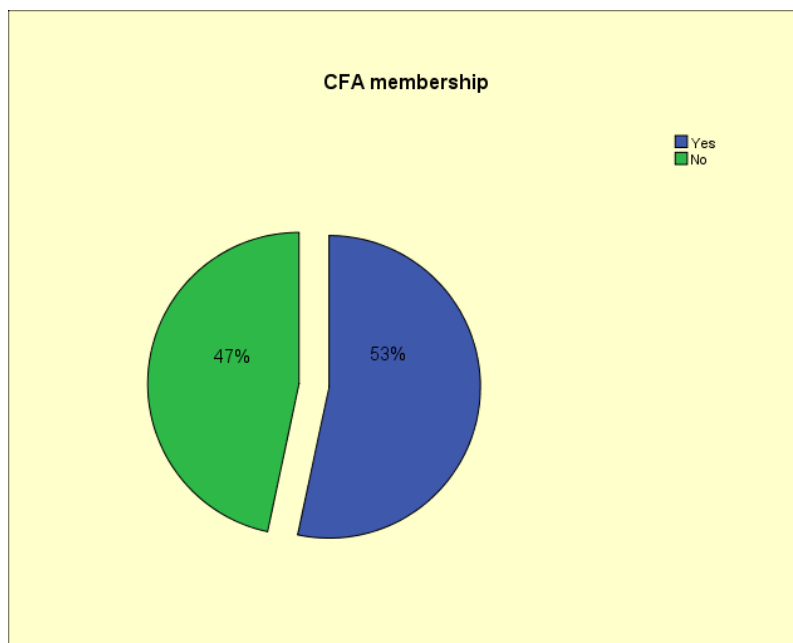


Figure 6: CFA membership among respondents

53% of the sample population are members of the CFA while 47% of the responders are not members of the CFA. This sample indicates that only slightly above half of the population are CFA members and hence have access to the socio-economic benefits that accrue from utilization of user rights. The average participation in CFA's explains why most of the respondents feel that CFA's have had no impact on their socio-economic status.

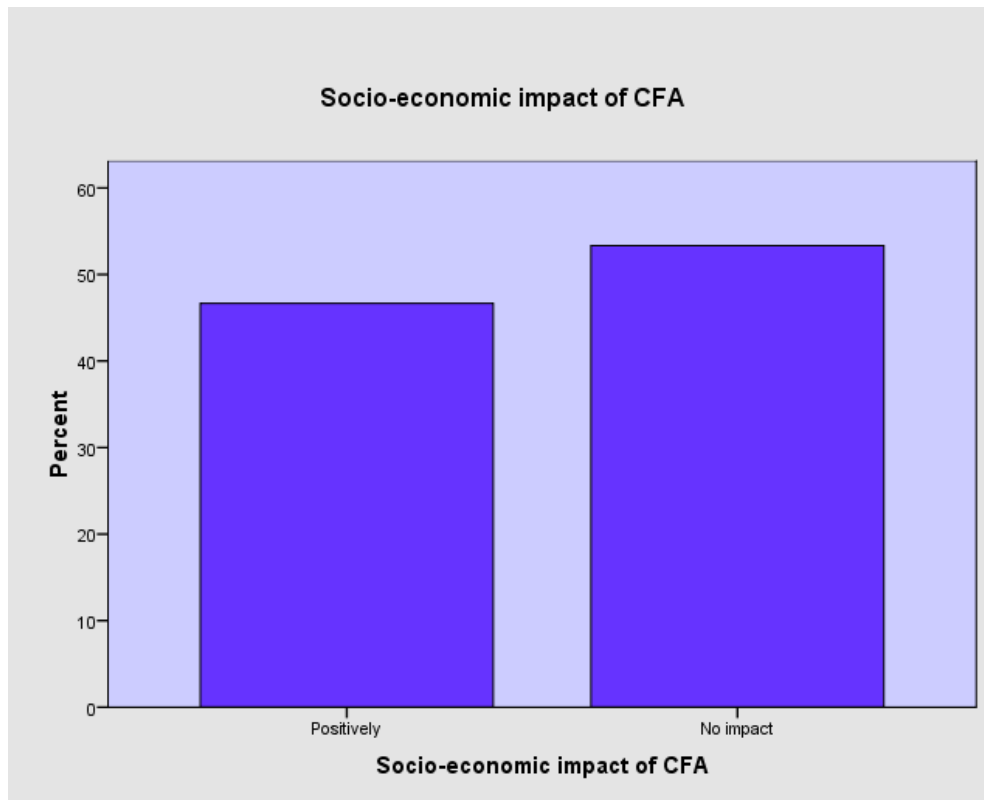


Figure 7: Nature of socio-economic impact of CFA on respondents

47% of the respondents felt that CFA's contribute positively to their socio-economic status while 53% of the respondents felt that CFA's have had no impact on their socio-economic status.(see figure 7) None of the respondents said that CFA's had a negative impact on their economic status. These findings imply that more needs to be done to get people involved in CFA's so that they can have a positive impact on their socio-economic status as envisioned in the Forest Act (2005)

Various user rights have been identified by NOKICOFA including; grazing and grass cutting, honey harvesting, fuel wood collection, water abstraction, and forest soil collection, collection of

medicinal plants and poles and rafters among others. These activities are subject to certain rules and regulations. User fees are also imposed on some of the activities.

Other nature based IGA's that NOKICOFA is involved in include tree nurseries and beekeeping.

Respondents enumerated various ways in which they have benefited from membership in CFA's as represented in figure 8 below;

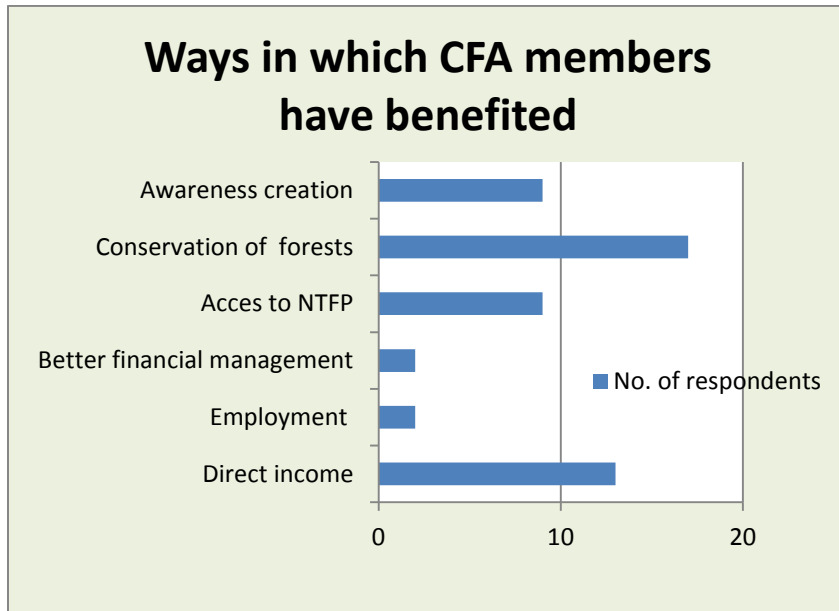


Figure 8: Types of benefits to CFA members

There is need to increase the employment opportunities and promote initiatives that enhance better financial management. Since only about 1/3 of the respondents identified various socio-economic benefits accrued from membership in CFA's there is need to enhance participation in activities so as to increase benefits.

5.6 CHALLENGES FACING CFA'S IN IMPROVING LIVELIHOODS

Some of the challenges facing NOKICOFA in improving livelihoods of the community identified by the respondents to questionnaires and interviews include;

- Inadequate funds to start off and run income generating activities(see plate 3)
- Inadequate capacity to engage in silvicultural activities e.g. plantation harvesting

- Poor leadership within the CFA
- Low participation levels in the CFA
- Poor flow of information between the CFA officials and members
- Corruption among officials and KFS officers leading to continued deforestation
- Conflicting interests among members

Some challenges are quite technical for instance the beehive in plate 2 below was donated by WWF to the CFA. However it has not helped the member because bees are yet to come.



Plate 2: A beehive at a member's homestead



Plate 3: Overgrown tree seedlings at member's nursery

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

Participatory Forest Management in Kenya as envisioned in the Forest Act (2005) has greatly improved on the management of forests by involving local communities. Following lessons learnt in the initial stages of its implementation, Community Forest Associations countrywide continue to improve on their roles and responsibilities in poverty reduction, employment creation and improvement of livelihoods as well as conservation of forest resources.

North Kinangop Community Forest Association has a well defined purpose and objectives. The association has outlined various strategies to meet the twin goals of socio-economic development and environmental conservation. However they are still at the initial stages of implementing some of the strategies geared towards socio-economic empowerment while most of the activities are yet to be initiated. It is also evident that there are a number challenges hindering CFA's in the attaining their socio-economic goals that need to be overcome.

As earlier seen, access to user rights leading to socio-economic benefits and involvement in management of forest resources act as an incentives for better to conservation of forests by adjacent communities. Therefore there is need to improve on the capacity of CFA's in improving livelihoods of adjacent communities so as to give an incentive for the community living adjacent to North Kinangop Forest Reserve to conserve the forest.

6.2 RECOMMENDATIONS

NOKICOFA needs to enhance partnerships with KFS and NGO's such as IMARISHA Naivasha so as to benefit from training and capacity building which are necessary in enhancing the functions of CFA's.

With the development of realistic, innovative and well structured proposals, NOKICOFA will be in a better position to secure necessary funding from various interested parties including the county government and donor agencies such as GIZ and JICA.

NOKICOFA should also link up with research institutions such as universities and KEFRI in a bid to identify new innovations for IGA's and forestry that are potentially beneficial for the CFA.

NOKICOFA needs to improve on the already existing IGA's to enable the association to build their capital base for future projects. These can be achieved through better management of existing resources. Internal financial auditing measures also need to be enhanced leading to better financial management.

Initiatives such as well governed merry-go rounds could also help to increase existing funds as well as help the members in individual development projects enhancing better financial management.

In order to avoid leadership wrangles, NOKICOFA should ensure strict enforcement of their constitution especially regarding election to office of leaders and their terms.

The CFA officials should create mechanisms that enhance proper dissemination of information to all the members of the CFA. The leaders who are often involved in training and capacity building, should ensure they pass the knowledge and skill they have acquired to the other members through holding occasional meetings.

Any benefits accrued from group activities should be shared equitably among all members in a transparent and accountable manner.

CFA members should be encouraged to keep themselves updated with new technologies and opportunities. These will spur innovation and entrepreneurship among the members especially the youth that could result in economic growth.

Proper channels for flow of information should be enhanced within the CFA in order to ensure synchronization of individual goals with the common goals of the CFA remains a priority in order to reduce instances of conflicts of interest. Information should flow in both top-bottom and bottom-up dimensions.

6.3 AREAS FOR FURTHER STUDY

In future, more research should be done on ways to improve PELIS as a strategy for socio-economic empowerment. In particular, suitable food crops should be identified that provide returns to the farmers and at the same time their cultivation has minimum risk of uprooting tree seedlings. At the same time research should be done to identify ways in which CFA's can be empowered financially to participate in silvicultural activities arising from mature plantations. In this way more beneficiaries can be brought on board to benefit from the wood industry in an open and transparent manner.

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APPENDICES

APPENDIX 1: HOUSEHOLD QUESTIONNAIRE

HOUSEHOLD QUESTIONNAIRE

ASSESSMENT OF COMMUNITY FOREST ASSOCIATIONS (CFA's) IN SOCIO-ECONOMIC EMPOWERMENT OF COMMUNITIES

Dear respondent, I am a student in pursuing Bachelor of Environmental Planning in Kenyatta University. I am carrying out a research based on the title, Assessment of CFA in socio-economic empowerment. Kindly assist in the research by answering the questions. The information provided is confidential and will only be used for purposes of the research. Thank you for your cooperation

Basic Respondent Information

Sex (1) Male (2) Female

Age (1) 15-20 (2) 21-30 (3) 31-40 (4) 41-50 (5) Above 50

Level of education (tick as appropriate)

1	None	
2	Incomplete primary	
3	Complete primary	
4	Incomplete Secondary	
5	Complete Secondary	
6	Tertiary level	
7	University level	

Number of Children

(1) None (2) 1-3 (3) 4-6 (4) 7-9 (5) Above 10

Income per month

1	0-10,000	
2	10,001-20,000	
3	20,001-30,000	
4	30,001-40,000	
5	40,000-50,000	
6	Above 50,000	

How long have you lived in this area?

(1) Below 5 years (2) 6-10 years (3) 11-15 years (4) 16-20 years (5) above 21 years

Have you benefitted from forest conservation?

(1) Yes (2) No

Are you a member of a Community Forest Association (CFA)?

(1) Yes (2) No

How has participation in the CFA impacted on your economic status?

(1) Positively (2) Negatively (3) No impact

Which activities does the CFA participate in and which ones are you a beneficiary of?

Activity	Involvement by local CFA	Are you a beneficiary?
Tree nurseries		
Harvesting of NTFP		
Farming (shamba system)		
Community based wood & NTFP industries		
Bee keeping		

Merry go round		
Community forest policing		
Ecotourism		

Others (specify).....

In what way have you benefited from the above activities?

Direct income from activities	
Employment	
Better financial management	
Access to NTFP	
Conservation of forest resources	
Environmental awareness	

Others (specify).....

Has community involvement assisted in the management of the forest?

- (1) Yes (2) No

If yes how has the forest benefited?

- (1) More trees have been planted
- (2) Reduced deforestation
- (3) Reduced forest fires
- (4) Reduced encroachment
- (5) Others (specify)

If not, what challenges hinder the community in management of the forest?

.....

.....

What do you think CFA's should do to improve management of forests?

.....

.....

.....

Appendix 2: Institutional Interview Guide

INSTITUTIONAL QUESTIONNAIRE

Name of institution.....

Respondent's name.....

What is the mandate and role of your organization in conservation of forests?

Have you partnered with local CFA's in conservation of Aberdare Forest Reserve?

What is the nature of your partnership with the local CFA's?

How have you helped the CFA's to achieve their purpose and objectives in socio-economic empowerment?

How have CFA's in the area contributed to Socio-economic empowerment?

What challenges have you faced in partnering with the community in conservation of Aberdare Forest?

What institutional, legal and policy framework govern the involvement of communities in management of forests?

Appendix 3: Observation Guide

OBSERVATION CHECKLIST

There are various user rights that the CFA's have to forest reserves. Fill those that you observe in the area of study and comment on their stage of implementation while noting the challenges you observe as observed in the table below. (Tick where appropriate)

User right	Present	Absent	Stage of implementation	Challenges observed
Collection of medicinal herbs				
Harvesting honey				
Harvesting timber or fuel wood				
Grass harvesting and grazing				
Collection of forest produce for community based industries				
Plantation establishment through nonresident cultivation				
Contracts to assist in carrying out specified silvicultural operations				
Development of community wood and non wood based industries				