

**RURAL-URBAN DIVERSITY IN THE IMPLEMENTATION OF
PARTICIPATORY FOREST MANAGEMENT: THE CASE OF NGONG'
ROAD AND KIPTUGET FORESTS, KENYA**

**A thesis submitted to the University of Nairobi for the partial fulfilment of the Doctor of
Philosophy Degree in Environmental Governance and Management**

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This thesis is my original work and has not been presented for award of a degree in any other University

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ACKNOWLEDGEMENTS

In pursuit of my PhD I have enjoyed good health and sound mind and for this I give thanks to God Almighty. In each and every step of this work I found strength, grace and peace. I sincerely want to thank the University of Nairobi for granting me the opportunity to pursue this programme. I am forever indebted to my Supervisors Dr. Jane Mutune and Dr. Kiemo Karatu for their guidance and encouragement throughout the study.

I would also like to register sincere gratitude to all the great people I got the opportunity to meet during my fieldwork. Special thanks to Kenya Forest Services for allowing me to use their resources and participating in the research. I am indebted to Simon Ng'ang'a of Ngong Road Forest Association and Mr. Julius Sawe, Chairman of Kiptuget Forest Association and all the CFA members that were involved in the study. My Assistant Researcher and GIS expert-Wycliffe Kimutai, thank you so much.

Special gratitude goes to my wife Edah-Thank you for your sacrifice that has made this accomplishment possible. I will not forget to thank my parents Francis and Rose Boiyo, classmates and friends. This work is evidence of your prayers and support.

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ACRONYMS

AGM	: Annual General Meeting
CBFM	: Community Based Forest Management
CBNRM	: Community Based Natural Resource Management
CBO	: Community Based Organization
CFAs	: Community Forest Associations
CFM	: Community Forest Management
DFID	: Department for International Development
DFM	: Decentralized Forest Management
DRSRS	: Department of Resource Surveys and Remote Sensing
EU	: European Union
FAO	: Food and Agriculture Organization
FD	: Forest Department
FAC	: Forest Adjacent Community
Go	: Government of Kenya
GSA	: Governance System Analysis
Ha	: Hectares
IGAs	: Income Generating Activities
JFM	: Joint Forest Management
KFS	: Kenya Forest Service
KHRC	: Kenya Human Rights Commission
KICOFA	: Kiptuget Community Forest Association
KShs.	: Kenya Shillings

KTB	: Kenya Tourism Board
MEWNR	: Ministry of Environment Water and Natural Resources
NGO	: Non-Governmental Organizations
NRFA	: Ngong' Road Forest Association
OECD	: Organisation for Economic Co-operation and Development
PELIS	: Plantation Establishment and Livelihood Improvement Scheme
PFM	: Participatory Forest Management
SDGs	: Sustainable Development Goals
SPAN	: Social and Public Accountability Network
SPSS	: Statistical Packages for Social Sciences
UN	: United Nations
UNEP	: United Nations Environmental Programme
UNCED	: United Nations Conference on Environment and Development
WEF	: Women Enterprise Fund
WCED	: World Commission on Environment and Development
WCK	: Wildlife Clubs of Kenya
YEF	: Youth Enterprise Fund

ABSTRACT

Studies that have considered PFM have suggested that effectiveness in the conservation and management of forest under PFM is a subject of various factors which influence the capacity of the community to effectively engage in PFM. One of the areas that has received focus in the study of socioeconomic and sociodemographic factors that influence community's environmental concern is the rural urban settlements. This study aims to explore how the rural and urban social structures influence forest management system under PFM. A comparative study design was employed to analyze how socio-demographic and socio economic factors as presented in urban and rural areas influence implementation and performance of PFM. Ngong' Road Forest in Nairobi City County and Kiptuget forest in Baringo County were purposively selected to represent urban and rural forests respectively. Primary data was collected using questionnaires, key informant interviews and participants' observation while secondary data was collected from review of PFM technical reports, peer reviewed articles, publications, books and journals. Quantitative data was coded in SPSS and analyzed using measures of central tendency frequencies, percentages and cross tabulation. Qualitative data was analyzed using content analysis and summaries. In order to compare data from the two sites, T test was used. The study found out that membership of the forest associations in Ngong Road and Kiptuget forests were constituted differently. Ngong Road forest association was constituted by individual community members, corporate organizations and NGOs while Kiptuget forest association was constituted by individuals from forest adjacent community. The difference in membership influenced how the leadership of the forest association was formed whereby Ngong road had a dual system where CFA leadership was made of representative of the community members and representatives of NGOs and corporate bodies while Kiptuget association had a homogenous systems made up of

community members elected from the grassroots and at the CFA level. The study further found out that members of Ngong road forest were involved at a higher level of decision making of consultation level compared to Kiptuget forest station members involved at an information level. In all the three areas of decision making, connectivity and knowledge use, Ngong Road forest association was found to have a higher performance capacity with an average score of 10.6 compared to Kiptuget forest association with an average of 4.6 points out of 15.0. It was also found out that there was a significant difference in the factors motivating members of Ngong Road and Kiptuget forest to join CFAs. Consequently there was a difference in the activities undertaken by the two forests whereby Ngong Road forests was found to have diverse active and operational user groups while members of Kiptuget were predominantly engaged in PELIS. The survey further revealed that Ngong' Road Forest performed better in the implementation of forest activities in the forest management plan at 3.7 points compared to Kiptuget forest which scored 1.8 points out of 5. The study concludes urban and rural divides presents factors that influences the implementation and performance of PFM in these areas and points to the need for KFS to consider diverse socioeconomic and sociodemographic settings in implementation of PFM; operationalization of dormant user groups, enhancing decision making power of CFAs and government intervention in building the capacity of CFAs particularly in rural areas in an effort to ensure the success of PFM.

CHAPTER ONE: INTRODUCTION

1.1 Background

Forest is an important natural resource that plays a key role in the livelihoods of human being as well as ensuring environmental stability (Salbitano *et al.*, 2016). These forests are increasingly under pressure resulting from several anthropogenic factors including exponential population growth, industrialization, urbanization among many others (Musyoki *et al.*, 2016). To address the challenge of deforestation and unsustainable use, many nations have adopted community forestry systems where members of the local community are involved in forest management (Jatana and Paulos, 2017). The involvement of community members has in the past three decades become a key element of government policies in forest management in developing countries with an objective of fostering sustainable forest management and enhancing community livelihoods (Merlet *et al.*, 2016).

Community participation in forest management is a system that brings on board the community living around the forest and has the stake in it to participate in conservation and management. In the process of management of forest, the community members have access to the forest and derive benefits from it include livelihood (Ngece *et al.*, 2007). The adoption of participatory forest management in Africa was based on the argument that the centralized systems of management had failed. In Kenya for instance, The Kenya Taskforce report on forest management of 2018 indicated that during the centralized system of forest management, the country was losing forests at an unprecedented rates which were approximated at 5,000 hectares per

year (Ministry of Environment and Forestry, 2018). The system was further adopted because forests were embedded in the livelihoods of the communities (Jatana and Paulos, 2017, Musyoki *et al.*, 2016).

The Kenya forest conservation and management Act 2016 provides that the community living adjacent to the forest (FACs) can participate in the management and conservation of the forest by forming and registering a Community Forest Associations (CFAs). In this arrangement the members of the community are involved in conservation and protection of the forests. As they engage in the conservation and management, the association is granted specific rights to access forest products and services which include timber, herbal medicine, and firewood collection animal grazing, recreational activities among others (GoK, 2016).

Several studies done on the benefits of participatory forest management have juxtaposed the success of the system at the global arena as is the case in Nepal and Asia Pacific (Colfer *et al.*, 2008). Other studies however show that the most characteristic features of modern society in regard to environment is that the level of community's concern and action towards ensuring environmental sustainability is highly generalized (Bunger-Vivier *et al.*, 2017). As a result, there has been a growing need to ensure that consideration of environmental concern in the modern world is specific to the environmental resource and the concerned community of stakeholders (Ayiemba *et al.*, 2014). Efforts done in social science to address this gap largely focused on identifying factors that motivate people to engage in pro-environment behavior or practice with focus on engaging in activities that promote environmental sustainability of choosing activities that have less negative effect on the environment (Bunger-Vivier *et al.*, 2017). These studies have

led to identification of two lines of research where one is focused on sociodemographic factors associated with environmental concern and the other one focused on psychological determinants like values, attitudes and beliefs (Jatana and Paulos, 2017). One factor that has received considerable attention is place of residence modelled around urban and rural divide (Mertlet *et al.*, 2016).

Early studies of rural-urban diversity and concern for environment done in the western countries revealed that residents of urban areas tend to exhibit greater concern for environment than residents of rural areas (Bunger-Viver *et al.*, 2017). Migration and related dynamics of has however intervened and consequently more recent studies, suggest that differences among rural and urban citizens may be diminishing (Arts and Koning, 2017). In other areas, it has been reported that the residents of rural areas have more concern for the environment than residents of urban areas (Berenguer *et al.*, 2015).

In Kenya, several studies have been done on how the community has been involved in the conservation and management of forests. It has been reported that the involvement of the community in management of forest has had positive impact on livelihoods of participating members (Mutune, 2015). Other studies have suggested that several CFAs have been formed however their roles were not clear. More so it has been reported that the decision making powers largely remains with Kenya Forest Service (Chomba *et al.*, 2015). These studies have focused on forest that both in urban and rural areas however it has been scantily documented on how different socioeconomic and sociodemographic factors influence the implementation and performance of PFM.

1.2 Statement of the Problem

Urban and rural divides are characterized by different socio-economic and socio-demographic features that are of potential influence to the way participatory forest management is implemented and subsequently its performance. These factors include age, gender, economic activities, education level, culture, and population density among many others. Several studies have been done on PFM in different rural and urban forests in Kenya and other African countries (Mutune *et al.*, 2015, Couli-Lingani, 2016; Chomba *et al.*, 2015; Koech *et al.*, 2009) and have provided useful insights on the subject.

Studies that have considered implementation and performance of PFM have found out that its effectiveness is a subject of various factors which influence the capacity of the community effectively engage in PFM (Muthoni, 2012). Survey of PFM in Kenya have revealed that since the implementation of the system, some community forest association (CFAs) have remained disorganized, ineffective and posting varied success rates (Ongugo *et al.*, 2008). Variation in success rates of CFAs is an indicator that PFM system is not a blue print for successful forest management (Poteete and Ostrom, 2004). It has been scantily documented on what are the factors that responsible for the difference in success levels of CFAs.

The second PFM conference in Kenya held in 2014 observed that geo-location characteristics, good governance and organization capacity play a key role in the success of PFM (Ayiemba *et al.*, 2014). There is therefore need for a clear understanding of what determines the success of PFM in different social contexts. Although considerable attention has been focused on the PFM

in rural and urban forests in Kenya, there exists a gap on how urban and rural social, economic and geolocation factors affect and influence implementation and performance of PFM. This study was therefore proposed to assess how the rural urban divide and the related socio-economic and sociodemographic factors influence the performance of CFAs in the selected rural and urban forests in Kenya. The study aims to explore how the rural and urban social structure influence and shapes forest management system under PFM.

1.3 Objectives of the Study

1.3.1 Overall Objective

The overall objective of this study was to assess the influence of rural-urban diversity in the implementation of participatory forest management in Kenya

1.3.2 Specific Objectives

1. To examine the differential in participation of CFAs in rural and urban forests
2. To examine how rural-urban geo-location, socio-demographic and socio-economic factors impact on the effectiveness of CFAs
3. To analyze the difference in the determinants of participation, forest activities and their contribution to CFA members' livelihoods in rural and urban forests.

1.4 Justification of the Study

Forest resource management in Kenya is anchored on forest conservation and management act 2016. The act provides for participation of forest adjacent community in the management of the forest through formation and registration of Community forest associations. Forest community has been conceptualized as group of persons with a traditional association with a forest with focus on those living within 5 kilometers of the forest. Community and forest adjacent community as enshrined in the act are social structures which are dynamic over time and space. Urban and rural context for instance provide and good example where the dynamics of social structure are very evident. These social structures affect how social institutions are formed and as such have an implication on how PFM is operationalized in practice.

Kenya like other developing countries is undergoing rapid urbanization. This has been compounded by devolution in Kenya that has led to growth of several town and urban centers. As a result many more forest in Kenya by virtue of the location close to these towns and urban centers are quickly changing from rural to urban forests.

In light of critical role played by socio-economic and demographic factors in the management of public affairs, the sustainability of forest management under participatory forest management requires successful coordination and cooperation among stakeholders which is critical in understanding factors influencing participation levels, organizational capacity and activities.

With these changes comes a need to understand rural urban systems with a view of ensuring that PFM is successful both in urban and rural forest.

1.5 Scope and Limitations

This study focused on how rural-urban diversity as regards socio-economic, socio-demographic and geo-locational influence implementation of participatory forest management in Kenya. The study took a comparative approach and studied community forest association members in Ngong Road and Kiptuget forest. The fieldwork was undertaken between September 2017 and February 2018 research. Even though the study analyzed the contribution of forest activities to the livelihoods of CFA members, the study did not establish the difference in the impact of forest activities on livelihoods of CFA members in rural and urban forests.

1.6 Structure of the thesis

The thesis is organized in seven chapters. Chapter one of the thesis gives a general introduction of the study. Chapter two presents literature review. Chapter three details the materials and methods used for the study. Thesis is written in articles and chapter 4, 5 and 6 presents the introduction to each objective, findings, discussion and recommendations. Finally chapter seven of the thesis presents the summary of the findings, discussion, conclusions and recommendations.

CHAPTER TWO: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Economic Importance of Rural and Urban Forests

Forests are important resources that play a key role in the economy of any county. It is approximated that 80% of the world's forest is owned by the public and is an important contributor to the wellbeing of the communities (Yemiru *et al.*, 2010, FAO, 2016). Several studies have been done on the contribution of forests on livelihoods and it has been reported that approximately 1.6 billion people depend directly on the forests for their livelihoods. It has also been projected that by the year 2020, this number will have more than doubled (Senganimalunje *et al.*, 2015).

Human livelihoods have been considered to be comprised of four forms of capital i.e. social, natural, human and physical capital (Carney, 2002). Forest resource fall under the category of natural capital and it is key in provision of food and non-food materials and services including medicine, firewood, building materials, animal feeds, recreational activities, agricultural activities and many other benefits (Tumusiime, 2006). Furthermore, forests support diverse economic activities and thus directly or indirectly act as an important source of income to the locals and state agencies (Senganimalunje *et al.*, 2015). Besides, forests are carbon sequesters playing an important role in regulating climate and checking global warming (FAO, 2016). In cognizance of these critical roles played by the forest, it has been considered a crucial player in achievement of sustainable development goals (SDGs). This fact was highlighted at the XIV World Forestry

Congress, held in Durban in 2015 that set out a vision for the contribution of forests to achieving the Vision 2030 (FAO, 2016).

Forests are important source of environmental income particularly for the rural livelihood in developing countries accounting for about 28% of total household income (Angelsen *et al.*, 2014). A study conducted in South Africa found that rural communities living around the forest were involved in various activities in the forest aimed at enhancing their livelihoods which contributed approximately 20% of the total income of the family (Shackleton, 2004). These findings cannot be taken in generalizations because the livelihoods strategies and the contributions of forest products differ between different regions and countries. In Kenya, it is estimated that 2.9 Million people live close to the forests and derive their livelihoods from the forest resource (Oyvat and Githinji, 2017). In the context of this study, forests in Kenya have been categorized into rural or urban forests. According OECD (2012), rural and urban areas have been considered in terms of population density.

2.2. Rural and Urban Differences

Rural and urban divide has been a subject of study in over long time in social sciences disciplines. Although in general it has been thought that the size, density, and heterogeneity of modern cities has a direct social psychological effect on urban residents, studies have further indicated that the rural-urban divide has three distinct elements that have made it an interesting area of study. These elements have been classified into deterministic, compositional, and subcultural (Berenguer *et al.*, 2005). It is also claimed that the urban environment can be

liberating and enlightening when compared to the rigid traditionalism of rural communities (Wakrija *et al.*, 2013). Other studies claim that the differences between urban and rural context can be explained by demographic differences whose cumulative effect affect attitudes and social structures (Okumu *et al.*, 2017).

The urban social environment is characterized by a number of factors that are in sharp contrast with rural social environments (Huddart, 2009). Urban social environment comprises extended residence in or near a large, densely populated, metropolitan area while the rural experience is extreme opposite: residence in a small sparsely populated agrarian community (Oyvat and Githinji, 2017). Migration plays a fundamental role in rural urban divides where by at one time people are moving from one divide to the other. Studies on rural and urban settlement have revealed that approximately more than 50% of the world's population is urban residents (Oyvat and Githinji, 2017). Environmental degradation and pollution in urban areas have been attributed to this population and as a result evidence of the unsustainability of urban growth has drawn attention of the public leading to the call for sustainable cities (Okumu *et al.*, 2017).

Degradation and pollution in urban areas has led to several challenges affecting human beings which include water shortage, food insecurity, air pollution, energy scarcity, and challenges of housing and green spaces (Berenguer *et al.*, 2015). In these challenges urban forests which are key in stabilizing urban environment and providing green spaces face eminent threat. On the other hand rural forest face several challenges including logging, charcoal burning, political

excision, forest fires and mismanagement. These forests face threats of deforestation thus threatening the livelihoods of community members (Githinji *et al.*, 2014).

Devolution that was introduced in the new constitution 2010 in Kenya has sped up urbanization in Kenya through development of towns and cities within the country (Oyvat and Githinji 2017). This dynamic makes the study on urban rural divide more critical particularly in terms of natural resource conservation and management. As a result many more forest located near these towns and urban areas form part of the ecosystem of the urban area and can be categorized as urban or peri-urban (Measham *et al.*, 2013). These forests include Ngong' Road forest and Karura forest in Nairobi, Kakamega forest in Kakamega among many others.

Urban and rural divides provide social structures whereby urban dwellers are exposed to extremes of society including wealth, poverty, power, homelessness, crime, and deviance. In addition to this urban centers have opportunity for exposure creating a culture of tolerance and more willing and adaptable to change (Ayiemba *et al.*, 2014). Furthermore, urban experience is dominated by secondary relationships as opposed to primary relationships in rural areas (Muchara *et al.*, 2014). In regards to socio-economics, urban centers have long been the centers of trade and banking; while on the contrary rural areas are typified by agrarian economic activities. It is hypothesized that, due to the factors unique to the urban experience, urban residents will be less prejudiced, less resistant to change, and more aware of discrimination than rural residents (Haddort, 2009).

In a study done on Rural-Urban Differences in Environmental Concern in Canada it was found out that urban and rural divide play a role in the difference in environmental concern among the populations (Okumu *et al.*, 2017). In as much as rural urban influence in Canada may not be comparable to the status in development nations like Kenya where majority of population are still rural agrarian, there is still need to establish whether rural urban divide in Kenya influences performance of PFM in order to derive ways in which the success of the system is enhanced geo-location notwithstanding.

2.3 Governance of Forest Resources

Governance is system and mechanism put in place to achieve balance of power in order to enhance viability and prosperity. It involves processes, traditions and structures that interact to determine decision making powers and exercise of responsibility (Gedikli, 2009). It is characterized by collaborative arrangements, partnerships, representation, exercise of authority and joint consultative forums and accomplished through formal institutions of government and informal arrangements including private sector and civil society (Davidson and Lockwood, 2006, Winberg, 2010). In Kenya, governance of forest resource majorly involves interactions of government agencies including Kenya Forest Service which is the forest management lead agency and the Community forest Associations.

Forest resource yield multiple products that are of different use to wide range of stakeholders. This makes its management a complex affair which can only be addressed through effective system of governance (Agrawal and Gupta, 2005). Poor governance in forest resource has been

the genesis of the challenges that forests have faced in several decades. Deforestation is often attributed to a large degree, weak governance structures. In an attempt to address the challenges facing forests, states took over forest management and tradition and local community use rights in a system known as command and control (Coulibaly-Lingani, *et al.*, 2011). This was done because of the school of thought that the local communities are not only non-conservationist but also lack necessary technical skills and competencies necessary to conserve forests (Gill *et al.*, 2016). Command and control regime of forest governance imposed strict rules and regulations to prohibit access to forest and use of forest products. The approach was characterized by more loss of forest cover and thus deemed to be unsuccessful in achieving the objective of sustainability (FAO, 2016). It is on this premise that there came a call for a shift to decentralization and community involvement (Thenya *et al.*, 2007, Mukwanda and Manatsa, 2012). This discourse of shift of forest governance from command and control system to decentralized system informed adoption of decentralized system of forest management in developing countries including Kenya.

Decentralization in governance involves the devolution of power to lower and grass root institutions (Ribot, 2002) . It is a concept of governance that has been taking place throughout most of the world during the last three decades (Ribot, 2005. In its early years of introduction, decentralization was considered as the solution to the inefficiency and unresponsiveness of government but later on grew to include changes in policy, sharing of political power, opening up of democratic space and liberalization of markets (World Bank, 2007, Osei-kufuor *et al.*, 2013). In 1990s, the discourse widened further to embrace not only government but also other societal institutions, including the private sector and civil associations (Winberg, 2010). In the context of this study, decentralization of forest management involves engaging the forest adjacent

community in co-management of the forest resource. As an entity and organ involved in the process, the study considers the subjects of representation of the community, decision making power, the level of participation and the benefits that come from the process particularly livelihoods.

Across states and jurisdictions, decentralization have been adopted, domesticated and implemented through a framework of participation (Schreckenberg *et al.*, 2006). These frameworks include Participatory forest management (PFM), joint forest management (JFM) and community forest management (CFM). This was the principle that informed that enactment of Forest 2005 and subsequent Forest Conservation and Management Act, 2016. Despite the potential benefits of decentralization, it has been noted that laws that have been enacted in different states have not enabled the system to achieve its objectives (Ribot, 2005).

Studies done by Ogachi, 2016 and Mutune and Lund 2016 revealed that in the implementation of decentralized forest management, central governments have exhibited resistance through several ways including devolution of limited decision making powers, enhancing rules and regulations governing participation and choice of non-representative local institutions thus making the system ineffective. They further note that the powers given to local communities and allocated financial and other resources are not only extremely limited but also highly controlled through excessive oversight (Ogachi, 2016; Mutune and Lund, 2016). In appreciation of these findings, it is observed that there is very scarce work done on determining and evaluating how the devolved organ of forest governance has been set up. In particular there is need to evaluate the capacity of CFA as an organ of forest governance to deliver on its objectives in PFM. In doing this there is

need to establish how the system has been implemented both in terms of structure and establishment. In addition, stakeholders, collaborative arrangements, partnerships forums, and other variables which are key guides in decision making are unique and different for urban and rural set ups in Kenya (Davidson and Lockwood, 2006). This uniqueness influences key issues of governance like representation, authority and consultation levels making it highly likely that implementation of PFM in Kenyan forests and the resultant governance practices is not similar in urban and rural areas.

2.4 Development of Forest Laws in Kenya

Governance of forest resources in Kenya dates back to pre-colonial era where natural resources were governed by traditional and indigenous rules that were embedded in people's culture and ways of life (Oksanen *et al.*, 2011). Formalization of management of forest in Kenya was first witnessed when the county became a colony of Britain. In 1891, the first forest legislation was passed with the objective of protecting mangrove swamps in Coast of Kenya (Oksanen *et al.*, 2011). This was later on followed with Ukamba Woods and Forest Regulations that was published in 1897, amended in 1900 and 1901 to include conservation of trees around court houses and Railway (Oksanen *et al.*, 2011). In 1902, there arose a need to curtail forest destruction by providing for the gazettelement or de-gazettelement of forests. This led to publication of The East African Forestry Regulations that in addition transferred management mandate of forest from District Offices to the Forest Department (FD) (Chomba, Treue, & Sinclair, 2015). Further amendments followed suit leading to forest ordinances of 1911, 1915 and 1916. This ordinance made provisions for hiring of honorary forest officers and guards (Mogoi *et al.*, 2016).

Further amendments that happened in 1949 to 1954 marked the beginning of major shifts in forest management in Kenya by setting a platform that led to the drafting of white Paper number 85 of 1957. This was the Kenya's first forest policy developed with the aim of guiding the conservation and management of forest resources on government land (Kenya Forest Service; Government of Kenya, 2007). The white paper provided for reservation, protection and sustainable exploitation of forests (Ludeki *et al.*, 2006). The policy however failed to adequately recognize or reflect the role, rights or responsibilities of forest adjacent communities (FACs). As a result, it was revised after independence to Forest Policy for Kenya in 1968 (Session Paper No. 1 of 1968) ((Kenya Forest Service; Government of Kenya, 2007). During this period, forest ordinance was adopted as Forests Act 385, and it made provision for creation and regulation of forests in Nairobi under Forest Department (Oksanen *et al.*, 2011).

During this regime, the forest suffered massive destruction as was witnessed in 2000 and 2001 leading to loss of livelihoods by the FACs. (Mutune, 2015). Deforestation was as a result of deficient policies, corruption, and lack of political good will, lack of awareness, market failure, population pressure and poverty (Ludeki *et al.*, 2006). Forest loss was the trend until the economic reform paper for 1996-1998 that the government realized the need to work hard to reverse the trend. At this point the government acknowledged the concern of loss of biodiversity in indigenous forest and unproductive plantation forests (Oksanen *et al.*, 2011).

The push by international communities and civil society on democratization and people participation played a role in creating awareness and sensitization to all stakeholders on the

looming danger that came with forest mismanagement (Thenya *et al.*, 2007). Awareness created by civil society and the fight for democratic space among other factors that led to coming into force of Forest Act 2005. This is the law that gave life to formation and implementation of Community forest associations (Mugo *et al.*, 2010). The act since then went through reviews that lead to the Forest Conservation and Management Act 2016 whose aim is to develop and sustainably manage forest resources to achieve socio- economic development of the country (Government of Kenya, 2010). It has been more than a decade since the enactment of the legal framework for participatory forest management in Kenya and as such there is need for a comprehensive evaluation to establish whether the system has achieved its' objectives.

The Forest Conservation and Management Act, 2016 establishes new bodies and institutions which are critical in the implementation of PFM in Kenya. Kenya Forest Service (KFS) is one of the bodies involved in forest management. It is the lead agency in the management of all forest in Kenya whose function is to conserve, protect and manage all public forests in accordance with the provisions of the law. It is also mandated to work with communities and other government agencies including county governments to ensure sustainable forests as well as enhancement of community's livelihoods (Government of Kenya, 2016). In the chapter (V) of the Forest Conservation and Management Act 2016, the law permits the community to participate in forest management through formation and registration of a Community Forest Association (CFA). The question is whether Forest adjacent communities in urban and rural forests have registered CFAs for the purposes of participation in forest management.

Community Forest Association (CFA) is an important organ in forest conservation and management. Through the CFAs, the community around the forest can participate in forest conservation and management as well as access benefits from the forest. The benefits to the community are granted in form of user rights which include plantation establishment and livelihood improvement scheme (PELIS), educational activities, recreation, fire, grazing, medicines etc. The forest act allows the CFA to formulate and implement sustainable forest programmes, protect sacred groves and protected trees as agreed upon in the forest management agreement which the community and KFS signs. In addition to this, it is the role of CFAs to assist enforcement of forests rules and regulations and monitoring and evaluation of forests (Government of Kenya, 2005). Community members also have right to contracts to assist in carrying out specified forestry operations (Government of Kenya, 2016). As provided for by the Act, the question is whether the CFAs as registered and implemented has the capacity to play its role in PFM system of forest governance.

Studies have established that there is a strong relationship between the benefits the community derive from the forest and their level and commitment to participation (Musyoki *et al.*, 2016). Although this study makes contributions to the studies on participation in forest management, there still need to establish whether the CFA as implemented has a capacity to achieve its objectives. Furthermore, perceived benefits of rural and urban population cannot be perceived to be the same. This is because of the apparent difference in sociodemographic factors. These findings can therefore not be used to generalize the status of CFA in different contexts. In addition, the study identifies and makes use of no, low and high participation without going further into the details of what these level imply in the decision making process in PFM

2.5 Community Forest Association

The forest act 2005 that has since then been reviewed to Kenya forest conservation and management act 2016 gives clear guidelines on how the participatory forest management should be operationalized in Kenya. The act recognizes the role of community in forest management by providing that in order to participate in forest management the forest adjacent community should form and register community forest association (CFA) (GoK, 2016, World Bank, 2007). There are several studies that have been done on how CFAs have been established in Kenya and it has been suggested that the common approach is where forest adjacent communities organize themselves in Community based organizations (CBOs) which join together to form CFA (Musyoki *et al.*, 2016). It has also been observed that the leadership organ of the CFA is CFA committee and it is constituted democratically through election (Musyoki *et al.*, 2016).

Forest conservation and management act 2016 is clear functions of CFAs which include conservation, management and protection of forests. Studies have however revealed that the roles of the association have been changing and expanding over time. It has been observed that some CFAs are involved in rural development projects, negotiation, lobbying, conflict management and peace building and economic activities and projects outside the forest (Musyoki *et al.*, 2013). The act grants the community forest association user rights which are of economic, social, cultural, religious, livelihood, educational and physical value (Ayiemba *et al.*, 2014, GoK, 2016).

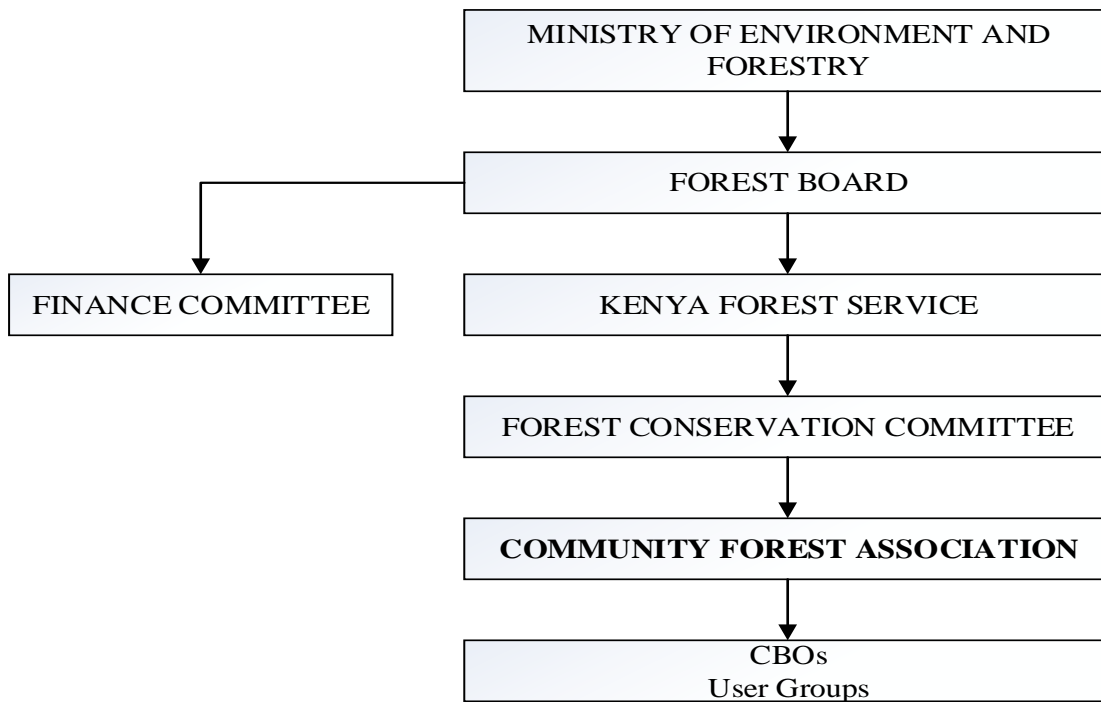


Figure 1: Forest Management organizational structure

Survey on the formation of CFAs in Kenya have revealed that several forest adjacent communities have formed CFAs while many other CFAs are in their formative stages (Mogoi *et al.*, 2012)..It has however been observed that most CFAs that have been registered are not organized while some of them are driven by other interests and motives other than forest conservation and community livelihoods. Consequently the system has been marred by diverse challenges including lack of financial and technical capacity, dormant user groups, lack of framework for benefit sharing and slow rate of adoption of the system (Ayiemba *et al.*, 2014). It is further observed that implementation and performance of PFM is highly influenced by the type of the forest, the nature of forest adjacent community, its diversity and other stakeholders, govern laws, rules and regulation and capacity and funding. This study acknowledges that urban rural

divide presents different social structures and thus establishing their influence on performance of CFA will greatly contribute to how differentially the CFAs can be treated to enhance the performance

2.6 Performance of Participatory Forest Management

Adoption and implementation of PFM in many developing countries came with expectations that it will address cases of deforestation and alleviate poverty (Lockwood *et al.*, 2017; Ayana *et al.*, 2015). Likewise, implementation of PFM in Kenya was aimed at enhancing forest cover as well as enhancing livelihoods of forest adjacent community. Participatory forest management involves several players with diverse interest and interactions that makes consideration of its performance a complex subject. In an evaluation of PFM in Africa, PFM is poised to have resulted to huge positive changes in institutional arrangement, forest resource management and livelihoods of FACs. In these incidences, those that present that success of PFM has alluded to several indicators of performance including formation of community institutions, reduction in deforestation and increased forest regeneration (Takahashi and Todo, 2012). Studies done in Kenya have contributed majorly on impacts of PFM. It has been scantily documented on the role of community based organizations. In particular, there is need to evaluate the performance capacity of CFA as established in Kenya. In doing so, there is need to be cognizant of the dynamics presented by geo-location as established in the PFM second conference held in 2014.

In other studies, like Mutune 2015, reports of positive livelihood indicators like, rising income level of CFA members compared with non-members have been reported. Other studies have also

postulated decrease in rates of deforestation, increase in forest cover and improved livelihood. As a system there is need to establish how the PFM system and governance have contributed to these observable changes. As such, there is need to establish how CFA has contributed to these changes to avoid attributing these changes to PFM without establishing the role played by PFM organs and systems. In doing so, there is need to be aware of the dynamics resented by geo-location as was observed during the PFM second conference.

In some other studies by Abrar and Inoue (2013) and Winberg (2010), it has been argued that PFM system has brought no change in the context of forest management across all facets of governance structures, institutional set up, forest management or livelihoods of FACs. They suggest that the system has not been internalized, adopted and implemented by the players and stakeholders and that the success stories proclaimed by PFM proponents are temporal and not enduring to have any meaningful positive impact (Abrar and Inoue 2013, Winberg 2010). The question in this study thus is whether PFM has been adopted and implemented as provided for in the law.

In a study on performance of participatory forest management in Ethiopia, it was found out that the benefits derived by community members were the biggest motivation for participation. The study further notes that while establishing the community based organizations, the uniqueness of the different set ups determined the institutional arrangements and the local practice (Ayana *et al.* 2015). In Kenya, rural and urban areas presents different set ups as a result of different social,

political, economic and cultural factors. These factors play a key role in determining institutional arrangements and the local practice. There is therefore need to establish how these factors has informed the establishment and performance of PFM in urban and rural forests.

2.7 Research Gaps

In the scholarly work on participatory forest management in Kenya, there is scarce literature on evaluation of CFAs as an organ of governance. It has been scantily documented how different sociodemographic factors influence implementation and performance of PFM. Existing literature on PFM in Kenya relating to rural forests and urban forests have been considered independently. Scarce work has been done to establish how difference existing between urban and rural social structures influence how PFM is implemented, how it is performing and how the difference in these factors can be used to enhance PFM in different contexts. Although several studies have considered various factors and how they are affecting various elements of PFM, there still exists a gap on comparative analysis between urban and rural CFAs.

Studies that have considered participation in PFM have looked at the subject in generality. In independent forests, the subject of members' participation but little focus has been put on the level of participation. These studies have considered determinants, challenges and factors affecting members' participation. In consideration of forest resource governance, there is need to empirically evaluate the extent and level of members' participation in forest management lest the outcomes of the process are falsely attributed to PFM. This study made use of theory of participation to establish the level of members' participation and decision making in PFM.

In evaluating the performance of CFA, this study evaluates the progress made by the CFA in implementing the initiatives and activities as scheduled in the forest management plans. Ethiopia and Burkina Faso has emerging literature on the performance of participatory forestry. It is however noted that the legal framework in Ethiopia is designed to empower the local community with clear and concise rights whose aim is to ensure that land ownership is clearly understood. These laws have been very instrumental in eliminating risks of mismanagement that could be occasioned by vague definition of property ownership (Gobeze *et al.*, 2016). On the contrary, Kenya legal framework on property ownership is separate from provisions of PFM. Furthermore, the government is still in control of what the local community does because the rights and subject of co-ownership has not developed to a level that will facilitate effective co-management. This legal framework in Ethiopia has helped the communities take on the responsibility of forest management and consequently benefit from forest and woodland resources within their area. In Burkina Faso, the model adopted is different from the practice in Kenya in the sense that it has adopted village jurisdiction while in Kenya, the legal framework provides for the community to form legal entities called Community Forest Associations (CFAs). Previous studies have examined roles of CFAs and other emerging issues. However there is no study done on how the CFAs have been established as an institution and what is its capacity as an organ of governance.

CHAPTER THREE: MATERIALS AND METHODS

3.1 Study Area

The work underlying this thesis was carried out in two forest stations one located in rural and another one in urban area in Kenya. The study was conducted in Kiptuget Forest-a section of Mau complex located in Baringo County and Ngong Road Forest in Nairobi City County. Kiptuget forest is a block of the Mau Forest complex located in Maji Mazuri Location of Koibatek sub-county in Baringo County and lies between latitude $0^{\circ}4'S$ and $0^{\circ}9'S$ and longitudes $35^{\circ}41'E$ and $35^{\circ}45'E$. In terms of forest management the forest is located within the Mau Conservancy. The forest is located within 5km off the Nakuru – Eldoret highway with the closest urban center being Kamara shopping Centre. Kiptuget forest has a duly registered CFA called Kiptuget Community Forest Association (KICOFA). KICOFA was registered in 2010. KICOFA was purposefully selected to represent CFA in rural area in Kenya.

Ngong Road forest is located in Dagoreti and Langata sub counties of Nairobi City County, 6 kilometers from the Nairobi Central Business District. It lies at an altitude of 1670 meters above sea level with latitude of $36^{\circ}50'$ and longitude $sl^{\circ}17'$ South (Moss, 1988). Ngong Road forest has a duly registered Community forest association (CFA) called Ngong Road Forest Association (NRFA). NRFA was registered in 2008. NRFA was purposefully selected to represent CFA in urban forest in Kenya

Map of the Study Area

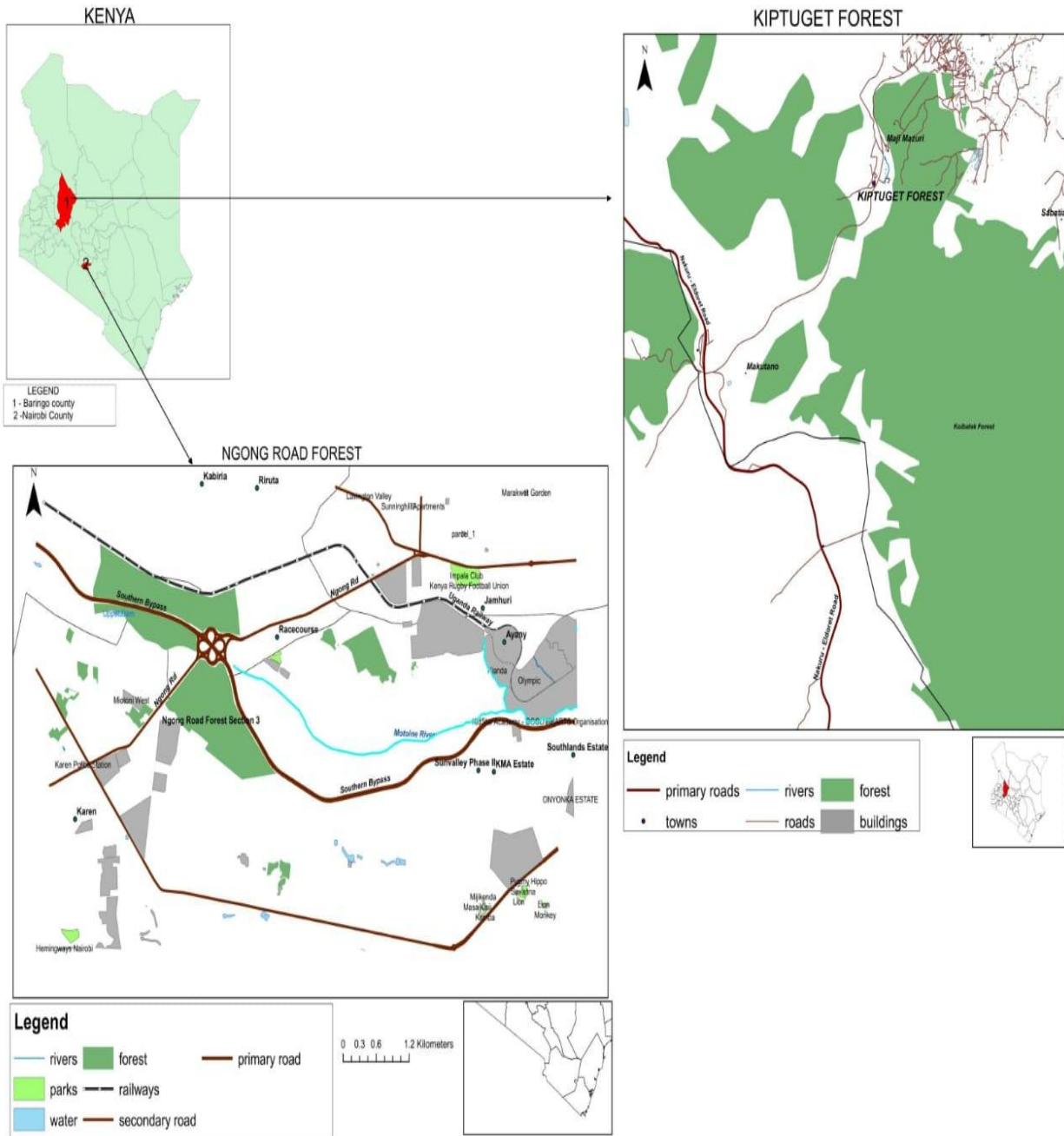


Figure 2: Map of the Study Area

3.2 Climatic and Ecological Conditions of the Study Area

Ngong' Road forest has three distinct landscape classification which creates a habitat for the various animals in the forest. One of the landscapes is forest landscape where the main feature is diverse tree species covering approximately 1205 hectares. Approximately 80% of the tree species are indigenous trees and the remaining section consists majorly eucalyptus plantation. The second distinct landscape is bushland with valleys and gorges while the third landscape is grassland interspersed with Eucalyptus tree species (Kenya Forest Service, 2009).

Ngong Road forest is rich with biodiversity, a home to over 175 bird species including African Crowned Eagle, over 35 species of mammals, numerous insects, reptiles, amphibians and fish (Kenya Forest Service, 2009) many wild animals and birds which include monkeys, baboons, antelopes, dik diks, hyenas, ant-bears, buffaloes, among others. It is endowed with several species of flora but the main vegetation types include but not limited to *Croton megalocarpus*, *Olea africana*, *Brachylaena huillensis*, *Calodendrum capensis*, *Warbugia ugandensis*, *Juniperous procera*, *Eucalyptus spp.*, among many others (Ogweno *et al.*, 2009).

Kiptuget is characterized by gently sloping topography. It has rolling hills and valleys with Mt. Londiani forming the highest level at 3008m above sea level. The area falls within the Great Rift Valley and as such is characterized by rich volcanic soils. It is also an important water catchment area in the region with several permanent rivers namely, Kiptegat, Tegat and seasonal streams

such as Maasai, Lem among others which supply water to the nearest communities for both household use and for livestock (Kenya Forest Service, 2015).

Kiptuget forest is a montane forest whose vegetation type is influenced by altitude. The lower part of the forest is dominated by plantation forest mainly of cypress and pine trees while the higher part of the forest is indigenous forest comprised of woody sections dominated by *Podocarpus falcatus*, *Juniperus procera*, *Olea africana*, *Paveta gardeniifolia*, *Dombeya kirkii*, and *Dombeya burgessiae* and bamboo (*Arudinaria alpina*) (Kenya Forest Service, 2015).

3.3 Socio-economic Aspects

Ngong' Road forest is located 6 kilometers with the Kenyan capital-Nairobi. The economy of this urban region is predominantly driven by business, industrialization and service industry. Ngong Road forest is a forest surrounded by mostly immigrant communities from all corners of the country who settled in the area by virtue of being employed in the nearby Nairobi City and its environs. Although a sizeable number of the community members work and derive their livelihoods from Nairobi City and, therefore, do not directly benefit from the forest. Part of the forest depends partly or entirely on the forest for livelihood. This is in form of fuel wood, honey, herbal medicine, and aesthetic values, sports and recreation. Furthermore, there are business, services and industries that are supported by the forests. The forest adjacent communities are to

be found distributed in Kibera, Ngando, Mutuini and Karen areas, which border the forest on all sides (City Council of Nairobi, 2007).

Kiptuget forest is located in rural area. The economy of the population around Kiptuget forest is predominantly driven by agricultural activities. The community is majorly crop and animal farmers. The adjacent communities rely on forest products and services for their livelihood in several ways including water, farming areas, grazing resources, bee keeping, and medicinal herbs. In addition to this, the forest forms part of the important cultural heritage sites for the Ogiek. It has designated sites and tree species, which are used for conducting cultural rituals such as circumcision ceremonies (Musyoki *et al.*, 2016). The forest still harbors large economic potential in terms of eco-tourism e.g. Nature trails, water fall, scenic site, and pre-historic caves.

3.4 Research Design

The study adopted a comparative study methodology. In planning for the study, the Researcher developed a log frame where data was to be collected over a period of four months. In responding to the objectives of the study, the study targeted members of community forest associations (CFAs) in the selected study sites. In addition key informants were targeted to beef up the information gathered from CFA members. Questionnaires and interview schedules were used in data collection.

Planning for the study involved 2 sets of reconnaissance survey where the Researcher established contact persons as well as makes logistical plans for data collection. In order to help in data collection, the researcher recruited and trained one enumerator on data collection and how to use the developed data collection tools. The study employed mixed methods.

3.5 Sample Size Determination

In determining the CFA members sample size, two sets of pre-visit were conducted whereby a list of CFA members was obtained from the chairpersons of both Kiptuget Community Forest Association (KICOFA) and Ngong Road Forest Association (NRFA). From a list of 603 registered members in KICOFA and 212 registered members of NRFA, a sample frame of active CFA members was developed with the help of CFA leaders where members active in day to day activities of the CFAs were selected. From this exercise, 165 and 249 active members in NRFA and KICOFA respectively were selected to form the target population of 414 CFA members. In arriving to the sample size the following formula was applied;

$$n = \frac{c^2NP(1-p)}{A^2N + (c^2p\{1-p\})}$$

Where:

n: is the sample size required

N: Target population (414)

P: Expected incidences (in this case 50%)

A: Accuracy in this case (5% error i.e. A = 0.05)

C: 95 % confidence (1.96)

n=203

3.6 Sampling

In order to come up with a representative sample, the 203 study population was distributed across the two forests according to the ratios of the active members i.e. 165:249. This led to a target population of 81 members of Ngong Road forest and 122 members of Kiptuget forest. To arrive at this target population active member from both Kiptuget and Ngong Road forests were grouped according to gender. The gender stratification of the list was aimed at ensuring that the study sample is a representative sample bearing in mind that gender could be a factor in utilization and management of natural resources. The researcher then randomly assigned numbers to male and female members of KICOFA and NRFA and all the members with odd numbers were selected to participate in the study. This exercise led to a study population of 83 members and 125 members of Ngong Road and Kiptuget forest associations respectively thus a study population of 208 CFA members.

With the help of forest station managers and CFA chairperson, the researcher worked on the list of key informants of the study. The key informants were forest station managers, CFA Chairperson or the designate and the community administrative leaders i.e. Chief and or assistant chief.

3.7 Data Collection

Data was collected over a period of 4 months. Primary data was collected through administration of questionnaires to CFA members, interviewing of CFA chairperson, forest station manager and

the area chief and participants observation. In conducting the interviews the Researcher was guided by interview schedules specific for each stakeholder group prepared in advance. In all cases the interviewee gave consent, the interviews were recorded, otherwise detailed notes were taken.

Secondary data used in the study was collected through review of peer reviewed articles, government reports, PFM technical reports, journals, books and publications.

3.8 Data Analysis and Presentation

Qualitative information gathered through interviews and informal discussions was transcribed and analyzed using content analysis and summaries. The researcher then drew areas of similarities and differences between the two sites of study i.e. Kiptuget and Ngong Road forests. Quantitative data collected was coded in SPSS analyzed using frequencies, percentages, means and cross tabulation.

In assessing the performance capacity of CFA to achieve its objective, governance system analysis (GSA) framework was used. This is a system that was postulated by Dale *et al.*, (2013) to systematically evaluate performance capacity of governance systems. It makes use of structural and functional factors of organs of governance in combination with planning and systemic approaches. The variables adopted in a GSA framework are vision and objective setting, research and assessment, strategy development, implementation and monitoring and evaluation (Potts *et al.*, 2016). The variables are weighed in a 5 point scale of functionality whereby highly functional is awarded 5 points while dysfunctional is awarded 1 point.

In establishing the level of decision making of CFA members, theory of participation was used whereby decision making levels are divided into four levels i.e. information, consultation, involvement and initiation. In assessing implementation of forest conservation and income generating activities, a 5 point Likert scale was used to depict different levels of implementation of initiatives that the CFAs envisioned in the forest management plans where 0 implied no progress made in regards to the initiative and 4 implied the initiative has been fully implemented. In drawing comparisons of variables between observations made in Kiptuget and Ngong Road forest inferential statistic of t test was used to determine if there was a significant difference between the means of Kiptuget and Ngong Road forests.

Data presentation has been done using description and tabulation.

CHAPTER FOUR: THE DIFFERENTIAL IN PARTICIPATION OF COMMUNITY FOREST ASSOCIATION IN URBAN AND RURAL FORESTS: THE CASE OF NGONG ROAD AND KIPTUGET FORESTS, KENYA

Abstract

Participatory forest management in Kenya entails involvement of community members and stakeholders in the management of forests through formation of Community forest association (CFA). CFA membership is drawn from the communities adjacent to the forest and as a result nature of stakeholders around the forests determines the nature of institutions of community forest association (CFA). Urban and rural areas present set ups with population characterized by different socio-economic and sociodemographic factors which potentially affect the nature of institutions within these contexts. This study sought to establish how rural-urban diversity influences participation of the community in forest management. Kiptuget Forest in Baringo County and Ngong Road Forest in Nairobi City County were purposefully selected to represent rural and urban forests respectively. Primary data collected using questionnaires and key informants interviews and secondary data collected from review of PFM technical reports, articles, and publications were used. Qualitative data was analyzed using content analysis while quantitative data was coded in SPSS and analysis using descriptive statistics and T test was used to establish the level of significant difference. It was found out that members of Ngong Road forest were in a higher level of decision making of consultation as compared to members of Kiptuget forest whose majority were involved at information level of decision making. The study recommends that KFS grants more decision making powers to the CFA.

4.1 Introduction

Community involvement in forest management is a system that has been adopted by several developing countries particularly in Africa and Asia in the past three decades. The system involves integration of the forest adjacent community in the forest conservation and management programmes (Coulibaly-Lingani, 2016). Participatory forest management approach has been termed as community forestry and considered a situation that intimately involves local people in forestry activity (FAO, 2016). The concept is also considered in terms of common property management regime whose goal is to involve the local community and their interests with a view of achieving sustainability (Taylor, 2000; Sikor, 2006).

In Kenya, the Forest Conservation and Management Act 2016, considers community as a clearly defined group of users of forests identified on the basis of ethnicity, culture or similar community. This group of persons is considered to have a traditional association with the forest for the purposes of livelihood, culture or religion. The act provides that the forest adjacent community has a right to register a community forest association in order to participate in forest management. The community forest association (CFA) is recognized as a group of local persons who have registered an association for the purposes of participating in forest management (Government of Kenya, 2016). Through the CFAs, the community members participate in management of the forest under the Participatory Forest Management framework (PFM).

Several studies (Ongugo *et al.*, 2008; Koech *et al.*, 2009) done on Community Forest Associations (CFA) in Kenya focused on adoption, roles, challenges and opportunities and its

impact on forest. These studies have provided critical insight on the adoption and implementation of the PFM system of forest governance in different forests in Kenya which could be categorized as either urban or rural forest. Urban and rural are two geo-locations with difference in sociodemographic and socio-economic characteristics. Studies have shown that geo-location features play a key role in the operations of the CFA (Ayiemba *et al.*, 2014). Although this is the case, it remains scantily documented on how different contexts presented by urban and rural divides in Kenya affect PFM. It this makes it very critical to establish how rural-urban divide influence participation with a view of establishing success factors.

Since PFM was adopted in Kenya, several studies have been done on its implementation and impacts (Mogoi *et al.*, 2012). In other studies done in Kenya by the focus is put on the concept of empowerment with bias on how the CFA represents the interests of various groups (Chomba *et al.*, 2015). From the studies done, it remains scantily documented on what level of participation and decision making are CFA members involved. This study sought establish how rural-urban diversity influences participation of the community in forest management by characterizing participation in urban and rural CFAs with regard to membership, practice and level of decision making.

4.2 Theory of Participation

Participation theory involves stakeholders and public engagement taking into consideration actors, organizational context and resultant practices (Jacobs *et al.*, 2009).The concept of participation in any form of governance entails the direct or indirect engagement and involvement

of people (Quick and Bryson, 2016). This engagement can either be direct where people are involved in the governance system or indirect where governance system makes use of representatives of people. These people are taken to have influence or can be affected by the subject of governance and at the same time have a valid, cognizable and legitimate interest (Freeman 2010). This involvement cuts across the cycle of decision making and implementation in policy formulation, programme implementation and monitoring and evaluation (Quick and Bryson, 2016).

A lot of debate has surrounded the process of implementation of participation in the systems of natural resource governance. According to Carmago-Borges and Rasera 2013, the debate has majorly been about the challenges that come with the process of designing adaptive participation and the complexity of inclusion that emanate from diversity of stakeholders .The debate is also generated from the subject of legitimacy of the process whereby in its absence there are probabilities of not only alienating the public from government but also disrupting the process of implementing policy decisions (Ozawa 2012). In order to meet the test of legitimacy there must be guarantee on the quality of participation process. This means that the process must be anchored on principles of justice, fairness, efficiency, equity and technical soundness and practicality (Gastil 2000; Jacobs *et al.*, 2009).

Research has demonstrated that involvement and engagement of the community in governance system requires acceptable levels of inclusion (Dean and Sharfman, 1993). It is observed that in the context of participation, there is need to ensure that appropriate range of interested parties are engaged in the decision making (Schlozman and Brady, 2012). It is therefore important that

detailed stakeholder analysis, power relations management and individual and group conflict management is taken into consideration (Bryson, 2004).

Urban and rural divides presents uniqueness in light of stakeholders and interests as reflected in different socio economic and sociodemographic factors. The uniqueness surrounding different contexts of participation, will without a doubt lead to different levels of engagement between actors (Potts *et al.*, 2016). Studies and research on participation have postulated four levels of participatory governance. These include information sharing level where the service providers inform locals about the project with an aim of facilitating or prompting action from the locals; consultation level where people are consulted on key issues of the project giving them an opportunity to interact and provide feedback; decision making level where beneficiaries have a decision making role in matters of program design and implementation and finally initiating level which is a proactive level of engagement that allows local communities to take the initiative in terms of actions or decisions pertaining to a project (World Bank, 2001). In the same line of thought Arnstein (1969) developed an eight ring ladder of participation process that encompasses Manipulation, therapy, informing, consultation, placation, partnership, delegated power and citizen control. Several other studies that followed this led to commonly agreed position that collapsed the eight stages to reflect four stages of Information, consultation, involvement and empowerment (Quick and Bryson, 2016). These different levels of participation in a system of governance make use of different instruments whose choice is determined by desired level of engagement (DeCaro and Stokes, 2013).

Community forest association is an entity that gives forest adjacent community members a platform upon which they participate in forest management in Kenya. It is in this entity that the framework of community participation is established in form of forest management agreement. In the context of this study, the researcher seeks to establish the level at which CFA members are engaged in participation and decision making in forest management. This study seeks to establish how rural urban diversity influences the level of participation and decision making in CFAs. This is done by considering the actors, the institutional setting, composition of CFA resultant practices and the tools and mechanisms used in participation.

4.3 Materials and Methods

The study was conducted in Ngong' Road Forest in Nairobi County and Kiptuget forest in Baringo county. The study used mixed methods where primary data was collected using questionnaire and interviews. Secondary data was collected through review of peer reviewed articles, PFM technical reports, government reports, books, publications and journals. Qualitative data was recorded and analyzed by making summaries and content analysis while the quantitative data collected was coded in SPSS and analyzed using frequencies, percentages, mean and cross tabulations. T test was used to compare the participation in the two sites

4.4 Results and Discussions

Ngong' Road Forest Association (NRFA) in Nairobi City County and Kiptuget Community Forest Association (KICOFA) draws its membership from the community living adjacent to the

forests. Membership and levels of participation in NRFA and KICOFA was shaped along diversity of membership, primary economic activities exposure and training.

4.4.1 Discourse of PFM Ngong Road and Kiptuget Forests

The survey of the discourse of implementation of PFM in Ngong' Road Forest revealed that before enactment of forest Act 2005, Ngong Road Forest had a form of community involvement in forest management. Ngong Road Forest Sanctuary was founded in 1990 and funded by donor agencies in response to unprecedented forest depletion that Ngong' Road forest experienced in the early 1990 with an aim of involving the community restore the forest. As a result community self-help groups were recruited and given opportunity to participate while running income generating activities within the forest. Involvement of self-help groups in the management of the forest played an important in setting foundation for community participation in Ngong Road forest management.

With the enactment of forest act 2005, Ngong road forest began transition the self-help groups into formation of a community forest association (CFA). The study established that the development of Ngong Road forest management plan was facilitated by the KFS through the support of Actis Capital Limited Liability Partnership and Chase Bank. Awareness creation, sensitization and capacity building was largely supported by the Ngong Road forest sanctuary. This support includes the facilities and resources that were used in the process.

Establishment of community forest association at Kiptuget forest started after the enactment of forest act 2005. The study established that initial community sensitization that led to the formation of Kiptuget Community Forest Association (KICOFA) community forest associations were initiated by Kenya Forest Service (KFS) officers According to one of the key informants, most activities involved in the process of planning for implementation of PFM in Kiptuget forest were done by KFS officers and external consultants, aided by forest guards and paid local field assistants.

The discourse of establishment of CFAs in Ngong Road and Kiptuget forests characterizes one of the differences in the PFM in urban and rural forests. This is evidence that uniqueness of stakeholders in urban and rural forests determines how the concept of participation is adopted and implemented. Studies in other urban forests have revealed that stakeholders in urban areas were quick to respond to participation in forest management. This finding implies that within an urban set up participation in forest management is more than the set legal framework. It is the understanding of how the community can sustainably interact with nature both in terms of conservation as well as deriving livelihoods. Effective establishment of community forestry should therefore not only be driven by rules and regulations of the state but should equally be guided by the aspirations of the community. This means that there is need in which the eminent uniqueness of various communities is reflected in how the PFM is implemented.

4.4.2 Membership of Community Forest Associations in Ngong Road and Kiptuget forests

The study sought to find out how the membership of the CFAs was constituted and the survey found out that the Ngong' Road Forest Association had a total number of 212 registered community members out of which 165 were categorized as active in the CFA, two registered NGOs and five corporate organizations. The Kiptuget Community Forest Association on the other hand was constituted by members drawn from five sub locations covering 18 villages. The total number of registered members at the time of study was 603 out of which 249 were active in the CFA. The five sub-locations extending over 18 villages of Kiptuget had organized themselves into three CBOs which jointly form the umbrella KICOFA as shown in the table 1.

The findings in the table 1 reveal that Ngong Road Forest Association (NRFA) had a diverse composition of membership. Besides the individual members from households surrounding the forest, the CFA has corporate bodies and non-governmental organizations as members. The individuals from households surrounding the Ngong' Road forest constituted the CFA members whose benefit was majorly on deriving products from the forest and offering services as casual workers. These are the members who were physically available to participate in the forest conservation activities. On the other hand, the NGOs and the corporate organizations are entities that are complete and have resources both technical and financial that are available to the CFA. The NGOs and Corporate organizations were members of the CFA who were not available to engage in the physical activities of the CFA.

Table 1: Membership of NRFA and KICOFA

CFA	Category	Name
NRFA	CBOs	Gatwekera Self Help Group
		Ngando Group
		Nuclear Handcraft Group
		Mutuini Group
		Mazingira Self Help Group
	NGOs	Msitu Raha
		Miotoni Wetlands
	Corporations	Ngong' Rd Sanctuary
		Wildlife Clubs of Kenya
		Bomas of Kenya
		Ngong Jockey Club
		Kenya Scouts Association
	KICOFA	CBOs

The NGOs and corporate organizations are members of CFAs because they either have an interest in the forest or have an interest in the conservation of the forest. The presence of this organization is the major difference between Ngong Road and Kiptuget forest. It can be argued that without these organizations, the CBOs in Ngong Road forest will operate the same way as the CBOs in Kiptuget forests. The study revealed that in Ngong Road forest, the corporate organization had conservation and management of Ngong Road forest as part of its core mandate or they did it as part of their corporate social responsibility. Wildlife Clubs of Kenya has an arm of Environmental Education that works closely with the Ngong Road forest in educating the members of CFA and the public on matters of environmental management and conservation. In promoting sports tourism, Bomas of Kenya had established leisure activities including nature walk, cycling and other sporting activities within the forest. Ngong Road sanctuary is pre-occupied with resource mobilization to bolster functions of Ngong Road forest accretion while Ngong Jockey Club used the forest for its activities and therefore conservation and management activities were of benefit to them. The NGOs that form membership of NRFA are forest conservation based and as such work to support the work of the CFA in conservation.

This study finds out that Ngong Road forest which represents urban forests has diverse categories of membership which include individual members from forest adjacent community, corporate organizations and non-governmental organizations. On the other hand, Kiptuget forest has a homogenous group of members comprised of community members from forest adjacent community. Diversity of membership in NRFA as opposed to homogeneity observed in KICOFA is evidence of the uniqueness of the stakeholders in urban and rural forests. NRFA in urban areas

are accessible to the wider population of the individuals and organizations that are based in Nairobi city.

The survey further found out that the nature of membership influenced how the leadership of the CFA was constituted. In constitution of NRFA executive committee, the members from the local community elected one representative from among themselves to be member of the CFA committee. The corporate bodies and NGOs seconded representatives to the committee. It was at this level that the members elected the office bearers. The rest the members remained as members of the committee. On the other hand, members of KICOFA elected their leaders at grass root community based organizations level. The leaders of the CBOs met at the CFA level where the CFA executive committee was elected. The findings reveal that the organizational arrangement of Ngong road forest results to a dual system of governance. This is because the corporates and other legal entities who are members of the forest community formed one wing while the individuals from forest adjacent community form another wing. This arrangement of organizational structure contradicts the principles of democracy envisioned in formation of CFAs.

Studies have revealed that similar organizational arrangements have been adopted in other urban forests where a need has arose to work with organizations like in Karura forest (Nthuku, 2016). It was however clear that there were no universal guidelines rules and regulations on how this arrangement is to be operationalized. Such gaps can be genesis for elite capture and inequality in the context of PFM. In light of this KFS should draft regulations to guide how corporate bodies are handled in the context of PFM.

Diversity of membership in a CFA came with opportunities. In Ngong Road forest, the study revealed that the corporations played a key role in enhancing the profile of the CFA as well as the capacity of the association leading to establishment of networks and partnerships that were critical in the achievement of the goals of the CFA. It was observed that organizations played a key role in enhancing financial, technical and partnership capacities of Ngong Road Forest Association (NRFA). Studies done by Poteete and Ostrom 2004 revealed that diversity of membership in community involvement which come in different dimensions including political economical interest, culture have huge impacts on outcomes of the process of participation. In similar studies where impact of membership diversity in a group performance was analyzed, it was found out that diversity of group membership has significant impact of diversity on team productivity where heterogeneous teams were found to be more productive (Hansen *et al.*, 2006).

4.4.3 Socio-demographic factors in Urban and rural CFAs

Studies done previously have suggested that socio-demographic factors are as important as physical variables in affecting functioning of a social structure. They play a significant role in explaining differences in subjective functioning in different social systems. The study sought to establish the gender, age, education levels and occupation of CFA members in Ngong Road and Kiptuget forests and the results are as shown in table 2;

Table 2: CFA members' Demographics

DEMOGRAPHIC FACTOR	CATEGORY	KICOFA (%)	NRFA (%)
Gender	Male	67	37
	Female	33	63
Age (Years)	18-25	12.0	3.6
	26-35	18.4	5.7
	36-45	28.4	26.5
	46-55	27.2	34.9
	Above 56	14.4	19.3
Formal Education Level	No Formal Education	9.6	4.8
	Primary Certificate	46.4	33.5
	Secondary certificate	32.0	31.5
	Certificate/Diploma	6.4	18.1
	Graduate	5.6	12.1
Participation in Capacity Building on PFM and related activities	Yes	54.3	75.9
	No	45.7	24.1
Occupation	Farming	76.0	10.9
	Business	6.4	38.4
	Professional	6.4	14.5
	Casual Worker	10.4	20.9
	Others	0.8	7.2

The study found out that in regards to gender, majority of the members of Ngong Road Forest Association (63%) were women while majority of members of Kiptuget forest (67%) were men. Key informants' interviews revealed that beyond the facts of population statistics, the nature of the CFA activities in the forest was one of the reasons that determined which gender of the community members will show more interest to participate in forest management.

In KICOFA where predominant activity is PELIS, the access to arable land was a motivation for more men to join the CFA. This is because the community socio-cultural factors hold that men who are the heads of households are also the custodians of land. Other studies that have examined factors hindering participation in social political and economic activities across gender found out culture, tradition and religious believes are factors that influence engagement and participation across gender (Losindilo *et al.*, 2010). It can be argued NGOs and corporate organizations in CFAs in urban areas played a critical role in women empowerment in regards to engagement in PFM. Part of this is diversity of user groups that result from investment which is little in CFAs without support of cooperate organization and NGOs.

Besides gender, age is another important demographic factor in participative governance. The findings on age composition of CFA members in Ngong Road and Kitpuget forest revealed that in both NRFA and KICOFA, the youth aged 18-25 years were the least represented in the membership. It was further realized that in NRFA the majority of the members were of the age bracket 46-55 years while in KICOFA the majority of the members were of the 36-45 age bracket. According to Ribot (2004), efficiency and equity benefits of decentralization in natural resource management come from the presence of democratic processes that encourage local

authorities to serve the needs and desires of their constituents irrespective of age or gender. In order to achieve this level of service, representation across the population is fundamental. Key informants interview revealed that the low representation of the youth in the CFAs both in urban and rural forests is because of a number of underpinning factors including; lack of awareness amongst the youth, the nature of benefits and income generating activities available in the respective CFAs, other commitments including schooling, changing living patterns among young people and lack of real and tangible benefit from participation.

Other studies that have considered gender diversity and performance of a group has suggested that gender diversity has a favorable impact on group performance (Hansen *et al.*, 2006). It has also been suggested that sex diversity improves the quality of the groups' engagement and output (Losindilo *et al.*, 2010). It can thus be argued that the success of CFA as an organ and institutions of forest resource management depends on how well the various segments of the community are represented. CFA with a normal or near normal representation across gender and age in both membership and leadership have high chances of success than CFA with gender and age imbalances in its composition. The Kenya constitution 2010, presents an expansive Bill of Rights that addresses inequalities encountered by different groups specifically the minorities and those previously marginalized. For citizens to gain the benefits that accrue from the established legal framework, there is need for extensive civic education on these rights and matters of equality. There is need for KFS as an agent of the state to create awareness geared towards engendering robust public engagement in issues of age and gender representation in PFM.

In regard to education level of CFA members, the findings on table 2 revealed that members of Ngong Road forest where CFAs has NGOs and corporate organization had higher level of formal education as compared to members of Kiptuget forest. The survey revealed that 12.1% of NRFA members had graduate level of education compared to 5.6% of KICOFA members while 9.6% of KICOFA members had no formal education compared to 4.8% of NRFA members. Education, awareness and knowhow is an important determinant of effective decentralized governance especially in the context where the concept of participatory forest management is a new experience to the Kenyan citizenry.

Formal education notwithstanding, there is need to devise way of helping the public to internalize their responsibilities and participate effectively in governance. Other studies that have considered the influence of education level on citizen participation in devolved governance have suggested that members of the public with higher education level exhibit higher engagement in devolved governance as compared to members with lower education levels (John 2009, KHRC, 2010 & Kalekye, 2016). This findings corroborates with the revelation from key informants interview that communication barriers was one of the major factor that was hindering effective participation of members with low education level. It was observed by the participant that in many of the CFA meetings and forums that included KFS official, members were required to express themselves in Swahili which they are not proficient and as such could not express themselves fully. Moreover most of the documents of the CFA are written in English which not all the CFA members can read and comprehend.

Article 35 of the Constitution of Kenya, 2010 guarantees every citizen the right to access information including information required for effective public participation. Education levels notwithstanding, all members of the CFA should be allowed to access information in a way and manner they can comprehend so that they can effectively participate in the activities of the CFAs. In order to address the knowledge and skill gaps, CFAs conduct capacity building for their members. The study revealed that 75.9% and 54.3% of NRFA and KICOFA members respectively had gone through PFM training. The study further revealed that training of members of NRFA was done with the support of diverse stakeholders among them Kenya Forest Service (KFS), Kenya Tourism Board (KTB), Wildlife Clubs of Kenya (WCK) and European Union (EU). The study further observed that the members were not only trained onsite but they were taken for benchmarking to other sites specifically Arabuko-Sokoke forest and Karura forest. Furthermore, the capacity building involved training on silvi-cultural process, income generating activities (IGAs) as well as entrepreneurship. NRFA members who were registered under bee keeping user group were given high level training on the project and sponsored with one hundred bee hives to start the project. On the other hand, members of Kiptuget forest received training on silvi-cultural process and PELIS establishments that was conducted with the support of KFS officers. This finding reveals the training opportunities available to members Ngong Road forest as a result of partnerships and networks of corporate bodies.

Occupation and livelihood of CFA members' is an important sociodemographic factor in regards to PFM. . The findings of the study as presented on table 5 revealed that the primary occupation of 76.0% of the members of Kiptuget was farming, 6.4% were engaged in various professions, 6.4% business, 10.4% casual work (10.4%) and 0.8% were involved in unspecified occupation.

On the other hand, 38.4% of the of Ngong Road forest were primarily in business, 10.9% farmers, 14.5% professionals, 20.9% casual workers and 7.2% in unspecified occupation.

This study reveals that members of Kiptuget hugely depend on farming while members of Ngong Road forest are sparsely distributed across variety of livelihoods and occupation. The study revealed that in Kiptuget little or no investment had been put in place to operationalize other user groups making PELIS the only dominant user group. As the available arable land in the forest was being covered by plantation, members of Kiptuget expressed fears on the future of PFM. In this context, it is unlikely that PFM will achieve its livelihoods and forest management objectives. Other studies on livelihood and participative governance have suggested that provision of positive relationship between livelihood and participative governance requires provision of both intrinsic as well as material pleasure to the community members (Verba *et al.* 1995). PFM should therefore focus on not only ensuring forest management but carry stakes in so far as community livelihoods are concerned. In light of this, KFS has a responsibility of engaging the community further in terms of training, capacity building and awareness creation with a view of helping the members fully understand the concept of PFM and utilize the diverse livelihood opportunities available in the forest to enhance their livelihoods.

4.4.4 Participation in Practice

Decentralized governance system has been held with an assumption that the regime creates formal local institutions that provide opportunities for community to participate and exercise rights. It is however important to note that these institutions are spaces for participation. One of

the tools of participation is engagement of the members in public meetings. Key informants' interview and reports of CFA revealed that NRFA had a schedule of regular meetings where members met twice in a month. The meetings were attended by the members of the local community. The corporate bodies and NGOs were only represented at the CFA executive committee and thus did not participate in the regular meetings of CFA members. The agenda of the meetings focused on the conservation and income generating activities of the CFA. They also focused on implementing decisions and directives from KFS or the executive committee. On the other hand, KICOFA had no document or evidence of regular meetings. According to KICOFA officials, meetings are only held whenever it was necessary.

Meetings and public engagement are important tools of participative governance and as such for effective functioning CFAs should be in a position to conduct consistent meetings. KFS together with CFA officials needs to put mechanism in place to ensure that there are regular CFA meetings especially in rural CFAs like Kiptuget where there was no schedule of meetings. In order to achieve this, there is need to introduce incentives for meeting attendance e.g. trainings, capacity building workshops and operationalization of user groups.

Attendance of meetings by CFA members' is not by itself a demonstration of quality of participation of members. Instead the members' level of engagement in the meetings is of material importance in the participation process. The survey sought to find out at what level of decision making are the members in NRFA and KICOFA involved and the results are as shown in the table 3;

Table 3: CFA Members' Participation in Meetings

Members' Participation in Meetings	NRFA (%)	KICOFA (%)	
Present in meeting and not making contribution	6.0	29.4	
Opinion sought-without guarantee of influencing decisions	34.9	32.0	
Expressing opinions & taking initiatives	39.9	7.0	
Having voice to influence decisions	9.1	2.0	
Volunteering to undertake tasks	10.0	26.4	
Others	0.0	3.2	
Decision Making			
Involvement in Decision making	Yes	98.8	87.2
	No	1.2	11.8
Level of decision making	Information	31.7	65.4
	Consultation	41.5	27.7
	Involvement/Initiation	26.8	4.9

The findings on the table 3 above reveal that members of NRFA are engaged at higher level of decision making as compared to members of KICOFA. In regards to having influence on the decisions made, 9.1% of NRFA members believe that they have a voice to influence on the decisions compared to 2.0% of KICOFA. In regards to decision making, although majority of members of both in KICOFA and NRFA indicate that they are in some way involved in decision making in the CFA the study reveals that 41.5% of NRFA members are involved at the consultation level of decision making while 65.4% of KICOFA members are involved at the information level of decision making.

The study reveals that members of Kiptuget forest do not only have regular meetings but are also involved at a higher level of decision making as compared to members of KICOFA. Studies conducted on the same subject have suggested that higher level of members' participation yields higher performance of decentralized governance system (Robinson, 2007). However, other studies have pointed out that in as much as this may be the case, there are other factors that may be equally influential, and hence attributing the local service delivery outcomes singly on citizen participation is a difficult task. It is therefore important that to note that the influential potential of citizen participation is only unleashed when other enabling factors are addressed including political, institutional, financial and technical factors (Yang and Pandey, 2011). This study reveals that there is need for state agency to grant the CFAs more decision making powers particularly in rural areas. A t test was conducted to establish the difference in participation in Ngong'Road and Kiptuget forests and the results are as shown in table 4;

Table 4: T-test results of Participation in NRFA and KICOFA

	Test Value = 0					
	T	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Education	31.395	207	.000	2.413	2.26	2.57
Occupation	21.857	207	.000	2.07692	1.8896	2.2643
Age	39.992	207	.000	3.28365	3.1218	3.4455
Frequency of attending meetings	25.315	205	.000	2.22330	2.0501	2.3965
Participation in meetings	26.164	207	.000	2.53365	2.3427	2.7246
Participation in decision making	56.810	207	.000	1.08173	1.0442	1.1193
Level of Decision making	32.214	202	.000	1.62069	1.5215	1.7199
Electing leaders	40.794	207	.000	1.30288	1.2399	1.3658

The one sample T test conducted on the variables of participation reveal that there is significant difference in the 8 variables of participation between members of Kiptuget and Ngong Road forest. These findings reveal that urban rural divide and the diversity in socio-economic and socio-demographic factors influences the implementation, membership and performance of CFAs. It is also evident that the geo-location characteristics of CFAs plays a key role in determining how the CFA is implemented and how its leadership is constituted.

4.5 Conclusion and Recommendations

Membership of both KICOFA and NRFA, was characterized by small representation of youth age bracket 18-25 years, KICOFA had majority members as men while NRFA had majority members as women. In addition to this, majority of members in KICOFA were farmers while majority of the members of NRFA were businessmen. Members of NRFA did not only have higher formal education levels compared to KICOFA but they also had participated in more capacity building initiatives to equip members with forest conservation and income generating activities skills. Furthermore, NRFA was not only constituted by individuals from forest adjacent community like KICOFA but had corporate bodies and NGOs as members of the CFA thus adopting a dual system of organizational structure.

In regard to participation, NRFA had more regular and well attended meeting compared to KICOFA where meetings were only held when necessary. Majority of members of NRFA were engaged at a consultative level of decision making while majority of members of KICOFA were involved at an informative level of decision making.

In light of the observations made in the study, the following recommendations are made;

- a) The PFM stakeholders led by the legislature should work on reviewing the legal framework and regulations governing the establishment and operations of CFAs in order to grant more powers to the CFA in the process of decision making. The CFA should deliberately be moved from the information sharing level of decision making to consultative and involvement level. This can be easily achieved by strengthening county governments and their working with CFAs. In this regard, the laws and rules made will be more specific in terms of location, culture, gender, livelihood and other factors that are critical in PFM
- b) The CFAs and KFS should work together to build the capacity of CFAs for them to effectively participate in co management of the forest. This will involve building their technical capacity, financial capacity, human capacity and social capacity through seminars, workshops, onsite training and exchange programmes
- c) PFM stakeholders led by KFS should engage in a more robust education and awareness creation on PFM. This should be aimed at ensuring more community members across all genders and ages join and participate in the activities of the CFA.

CHAPTER FIVE: THE INFLUENCE OF RURAL-URBAN SOCIAL, ECONOMIC AND GEO-LOCATIONAL FACTORS ON THE EFFECTIVENESS OF COMMUNITY FOREST ASSOCIATIONS: THE CASE OF NGONG ROAD AND KIPTUGET FORESTS, KENYA

Abstract

The Community Forest Association (CFA), an organ of forest governance established in the Forest Conservation and Management Act 2016 is constituted by the forest adjacent communities for the purposes of participating in forest co-management. This study comparatively examines how rural-urban diversity and related geo-location, sociodemographic and socio-economic factors impact on the effectiveness of CFAs in forest conservation and management. Kiptuget forest in Baringo County and Ngong Road forest Nairobi County were purposefully selected to represent rural and urban forest respectively. Primary data was collected using questionnaires, key informant interviews and participant observation while secondary data was collected from peer reviewed articles, journal, book, Participatory forest management technical reports, forest plans and management agreements. Quantitative data was analyzed using descriptive statistics while qualitative data was analyzed using content analysis and making summaries. Governance system analysis (GSA) framework was employed in the evaluation of the performance capacity of CFAs. The study revealed in all areas of decision making, connectivity and knowledge use, NRFA recorded higher performance capacity at 10.6 points as compared to KICOFA who recorded 4.6 points out of the possible 15.0. Furthermore, it was found out that Ngong road forest members were engaged in more capacity building initiatives as compared to Kiptuget forest members. The study recommended that the Kenya Forest Service should put in place a

mechanism to enhance capacity of CFAs in terms of decision making, partnerships and networking.

5.1 Introduction

Governance and management of forest resources in Kenya and Africa at large has over long time experienced several challenges that have been characterized by deforestation and loss of biodiversity (Potts *et al.*, 2016). In responding to these challenges, the institutional arrangements involved in forest governance have been shifting from narrow and controlled approach towards a more holistic approach that focuses on wider community and stakeholder involvement (Wakjira *et al.*, 2013). The broad based community involvement approach is based on the view that forest adjacent community has the capacity to co-exist harmoniously with the forest because they have enduring knowledge and unique capacity to sustainably use and manage natural resource (Coulibaly-Lingani, 2016). The objective of PFM was to avert the persistent problems of deforestation and to deliver better social and economic outcomes compared with the former centralized command-and-control resource management approach (Mogoi *et al.*, 2016)

The discourse of formal forest management in Kenya finds its history in the colonial era when the colonial government established Forest Department in 1902 (Thygesen *et al.*, 2016). This was a state institution that majorly focused on soil and water conservation. Amongst the major milestones of the Forest Department was the gazettelement of forests (Mogoi *et al.*, 2016). This exercise did not only alter the traditional and indigenous forest use and management but also led to eviction of people leading to unprecedented cases of landless Kenyans and squatters scenarios

that endures to date (Ogada, 2012). After independence in 1963, the command and control approach of forest management continued until when the approach started losing support occasioned by growing concern on forest destruction that came as a result of illegal and politically motivated forest excision in 1980s (Potts *et al.*, 2016).

In the early 1990s, there was unprecedented pressure from individuals, civil society and donors that played a key role in the adoption of Kenya Forest Plan which was the genesis of the shift from command and control approach to community participation approach in forest management in Kenya (Mogoi *et al.*, 2016). This was further followed with other reforms in the sector that later on culminated with the enactment of Forest Act 2005 thus making PFM a central pillar in the governance of Kenya's forests (Koech *et al.*, 2009). There has been further reviews in this legal framework that culminated to the Forest Conservation and Management Act 2016 (Government of Kenya, 2016). The Forest Conservation and Management Act of 2016 provide that Forest Adjacent community may register a Community Forest Associations (CFAs) under the Society's Act. After due registration, the CFA is authorized to apply for permission to participate in the forest management with the Kenya Forest Service (KFS). It is further provided that this application must be accompanied by a forest management plan specifying the proposed use and conservation measures of the area (Government of Kenya, 2016). After the management plan is approved, the CFA must enter into a management agreement with KFS. The agreement highlights CFA user rights as well as the responsibilities in respect to the management and conservation of the forest (Government of Kenya, 2016).

It is thus evident that adoption of PFM came into effect with new organizational structures and institutions. Studies that have considered PFM institutionalization process and its subsequent performance have yielded contradicting findings where others claim that a major transformation has taken place consequent to PFM on the management of physical resources and institutional arrangements while the critics argue that PFM has brought no fundamental change to the management of physical resources, institutional setup and community livelihoods (Takahashi and Todo, 2012). In the Kenya context, several studies have been done on PFM with focus on its institutionalizations through Community forest associations (CFAs). In these studies, it has been observed that although most CFAs have across the country to participate in forest management; the capacity to engage in PFM requires continuous capacity building. Furthermore, good governance and organization capacity development is still needed among the CFAs. Research has demonstrated that where there has been deliberate effort to build capacity of CFAs, positive results have been recorded (Ayiemba *et al.*, 2014).

Governance of forests resources is a complex affair that is occasioned by the multiplicity of players and stakeholders. In the context of this study, management of this resource is a function of interaction between CFA and KFS. Effective interaction of the CFA with KFS in order to yield desirable outcome in the context of PFM has to do with the capacity of the two entities. Rural and urban divides presents geo-locations characterized by different socio-economic and sociodemographic factors which influence the social structure upon which interaction between the community and the forest resources is found. Decentralization and rapid urbanization in Kenya is quickly turning more forests from rural to urban and peri-urban. CFA membership is

drawn from the communities adjacent to the forest where other community institutions also draw their membership. As a result of this the community membership determines the nature institutions in the community. It is therefore not feasible that all communities will have homogenous members and homogenous institution as is the case with rural and urban communities. This study comparatively examines how rural-urban diversity and related geo-location, sociodemographic and socio-economic factors impact on the effectiveness of CFAs in forest conservation and management.

5.2 Theoretical Framework

The frameworks for evaluating governance systems include among many others; Multi-level framework, social accountability framework and corporate governance analysis framework. The application of these systems varies depending on the nature of the systems of governance (Kenward *et al.*, 2011). Most of these frameworks are narrow focused do not address the capacity of the governance systems to achieve the intended objectives.

In evaluating performance of CFA as a system of forest resource governance, this study adopted the governance system analysis (GSA) framework. This is a system that was developed and postulated to systematically evaluate systems of governance and to inform reforms that are necessary for the system to achieve the intended objectives (Dale *et al.*, 2013). The system considers governance as a social system and makes use of structural and functional factors of organs of governance in combination with planning and systemic approaches making use of

interactions different components in the system (Potts *et al.*, 2016). In the context of this study governance involves interaction of the Forest, KFS and the community in the context of PFM. The variables adopted in a GSA framework are the key components of policy making in an institution which are vision and objective setting, research and assessment, strategy development, implementation and monitoring and evaluation (Potts *et al.*, 2016).

5.3 Materials and Methods

Baringo County purposefully selected to represent urban and rural forests respectively. Secondary data was collected from review of publications, articles, books, gray literature, PFM technical reports, constitutions of CFA and minutes. Primary data was collected through administration of questionnaires to CFA members and interviewing key informants where the feedback was recorded on an interview schedule prepared by the researcher. GSA framework was used to rate the performance capacity of CFAs. This was done through guided questionnaires. The participants were asked to apply a 5-point scoring system of functionality of the system in different aspects of governance.

Data analysis was done by summarizing the responses of qualitative data and conducting content analysis while quantitative data was coded in SPSS and descriptive statistics used in analysis.

5.4 Results and Discussions

This section presents results and discussion on the implementation of PFM establishment in Kiptuget and Ngong Road Forest and performance of Kiptuget Community Forest Association (KICOFA) and Ngong Road Forest Association (NRFA).

5.4.1 Institutional Establishment

Establishing institutions involved in PFM is key step in the PFM implementation process. The study found out that other Kiptuget and Ngong road forest had a registered community forest action plans where all of them had a valid forest management plan and signed management agreement.

The survey further revealed that both NRFA and KICOFA had put in place CFA executive committee that was comprised of 9 members. Out of the 9 committee members, 5 are official office bearers i.e. chairman, vice chairman, secretary, vice secretary and treasurer who also serve as bank signatories. Ability of an organization to meet its goals depends on its potential to perform and ability to successfully apply its skills and resources to accomplish its goals and satisfy its stakeholders' expectations. In establishing this, the research considered the education levels of the CFA executive committee members by establishing their education levels. Out of the 9 members in the committee it was found out that in Kiptuget majority of the members (67%) had secondary school level of education, 22% had certificate/diploma qualifications while 11% were graduates. On the other hand, 44% of the committee members at Ngong Road forest had postgraduate degree qualifications while 56% were university graduates. This finding reveals that CFA executive committee of Ngong Road forest has members with higher level of formal

education as compared to KICOFA. Other studies have suggested that education is one of the most important explanation for economic outcomes and it is central to leadership performance because it is key in helping individuals separate personal interests from common good (Besley *et al.*, 2011). It is therefore highly probably that Ngong Road forest association committee has capacity to perform its responsibilities better compared to Kiptuget forest association committee.

5.4.2 Effectiveness of Community Forest Association (CFA)

This section is an evaluation of organizational the effectiveness of CFA using Governance System Analysis (GSA) framework where three performance indicators of decision making, connectivity and knowledge use are considered. The findings are as shown in the table 5;

5.4.2.1 Decision Making Capacity

Decision making is one of the key processes that takes place within an organization. The effectiveness of process of decision and quality of decisions made in an organization is the primary foundation of efficiency and excellent performance. The study found out that that the capacity of CFAs to deliver desired decision-making outcomes is different. In all the five areas of vision setting, research and assessment, strategy development, implementation and monitoring and evaluation, the study revealed that NRFA exhibited higher capacity for decision making as compared to KICOFA.

Table 5: Performance Capacity of NRFA and KICOFA

STEP	DECISION MAKING		CONNECTIVITY		KNOWLEDGE USE		TOTAL	
	NRFA	KICOFA	NRFA	KICOFA	NRFA	KICOFA	NRFA	KICOFA
Vision and objective setting	3	2	2.5	1	4	2	10.5	4
Research and Assessment	4	1.5	3	2	3	1.5	11	4.5
Strategy and development	3	2	3	2.5	3	2	9	5.5
Implementation	4	2	3	1.5	4	2.5	12	5.5
Monitoring evaluation and review	3.5	1.5	3	1	4	2	10.5	3.5
TOTAL	17.5	9	14.5	8	18	10	53	23
MEAN	3.5	1.8	2.9	1.6	3.6	2.0	10.6	4.6

Ngong Road Forest Association had developed very clear and concise mechanism for setting the vision and objectives for the CFA. Additionally, it was realized that strategic view of implementation of PFM was elaborate and well established. It was noted that NRFA had developed both long term and short term strategic plans. On the other hand, KICOFA was yet to fully comprehend the process of effective engagement of community into having a clear vision, strategic approach as well as monitoring and evaluation. The study revealed that this was partly because of low level of awareness as well as the capacity of the leadership to mobilize and bring all the members to the point of thinking as part of the system.

Research and assessment is very fundamental in decision making. The study realized in NRFA, the average rate of capacity to make decisions in research and development was 4.0 points out of the possible 5.0 as compared to 1.5 of KICOFA. It was observed that members of NRFA had access to established Environmental Education center that was very fundamental in building capacity of CFA members and leaders. It was realized that the facilities and materials available at the Centre had enhanced the research and development capacity of NRFA. On the other hand, KICOFA had no facility to guide and to facilitate the process of research and assessment that will help in decision making. In addition to this, the study realized that there was very minimal research and information on Kiptuget Forest.

The governance system analysis (GSA) framework deployed in the study revealed that the mean capacity for decision making for NRFA was 3.5 out of the possible 5.0 while that of KICOFA was 1.8. This finding implies that NRFA has a higher decision making capacity as compared to

KICOFA. Thus, it can be postulated that by virtue of the enhanced capacity of decision making, the performance of NRFA in achieving the objectives of PFM is higher than that of KICOFA. It can be argued that the historical context and discourse of establishment of CFAs in both NRFA and KICOFA is a key determinant in the performance capacity on decision making.

5.4.2.2 Connectivity Capacity

PFM operates in a connected system of stakeholders and institutions including forest adjacent households, community forest associations and Kenya Forest Service. The connection of these stakeholders and institutions involves collaboration, partnerships and close engagement between stakeholders. The study found out that the mean for connectivity in the five points in NRFA was 2.9 while that of KICOFA was 1.6. It was established from interviews with NRFA key informants that although the formal and informal relationships between the stakeholders are somewhat fragmented, there was a strong underlying and demonstrated capacity to mobilize effort and coordinate effort at the CFA levels. This was evidenced by heterogeneous stakeholders, consistency and success of conducting meetings and diversity of players including donor agencies.

In KICOFA however, the GSA framework revealed that the CFA engagement in PFM both in planning and implementation is fragmented and lacks responsive connectivity that is key in decentralized governance system. This was evident by the few and poor attended meetings, limited number of partners and homogenous composition of CFA membership.

Connectivity also evidences the nature and kind of networks and partnerships established. Key among the observations made was the diversity of the CFA membership. It was established that NRFA was more heterogeneous with more diverse nature of members as compared to KICOFA. Secondly, the study realized that NRFA had established networks and partnerships with several other local, international government and private entities. These networks played a very fundamental role in funding, building capacity and enhancing the profile of NRFA. On the other hand, the study realized that KICOFA had not established any other partnership apart from the working relationship with KFS.

The low levels of collaboration between CFA and other stakeholders in PFM could be argued as the most significant constraint on the capacity of the CFA management structure to deliver its desired livelihood and environmental outcomes. While the review of documentations of NRFA and KICOFA revealed the existence of relationships with other organizations which include signed management agreements with KFS and up to date forest management plans, relationships and related networks were less collaborative as evidenced by unequal power dynamics, ambiguity in CFA rights, elite capture and lack of clear benefit sharing structure. These findings corroborates with those of Mutune and Lund, (2016) that the PFM law in Kenya has been drafted, adopted and implemented but Kenya Forest Service has remained in control of decision-making and access to forest resources a fact that is contrary to the goals of the participatory forest management.

5.4.2.3 Knowledge Use Capacity

The PFM regime is premised on the fact that the local community will make use of its traditional and other relevant knowledge in ensuring sustainable use and management of the forest. In particular sustainable use and management of forest requires that the community makes use traditional knowledge and practices in devising sustainable methods of production and livelihood strategies. Governance system analysis (GSA) framework deployed in the study revealed that across the five indicators i.e. vision, research, strategy, implementation and monitoring, NRFA score an average of 3.6 while KICOFA scored an average on 2.0 out of the possible 5.0 in knowledge use. This implies that NRFA was performing better in making use of knowledge in the implementation of PFM.

Interviews with key informants on the subject of knowledge use revealed that in both KICOFA and NRFA, there was a gap of knowledge and skills amongst the CFA members required for effective participation in PFM. However, NRFA had invested in establishment of center for environmental education whose aim was to enhance adoption of new knowledge and technologies in the implementation of PFM.

5.4.3 Forest monitoring and security enhancement

Enhancement of forest security and monitoring is one of the key mandates given to the community in the Forest Conservation and Management Act (FMCA), 2016. The capacity of the

CFA there to effectively enhance security and monitor what is happening in the forest is very fundamental in the success of PFM. The Study sought to establish the rate of CFA members' engagement in forest security enhancement and monitoring and found out that majority of members of both Ngong Road forest (84%) and Kiptuget forest (85%) were involved in enforcement of forest rules and regulation. Furthermore, majority of members both in Ngong Road (75%) and Kiptuget (88%) were involved in joint forest monitoring activities. In order to ensure that these operations are conducted well, interviews with key informants revealed that KFS had conducted sensitization amongst CFA members on forest illegal activities and how to work with the enforcement wing of KFS. These activities include among many others charcoal burning, illegal logging, trespass, grazing in the forest without permits and deriving any forest product or service without permits. Members were required to contact the KFS officers immediately for action.

The study further found out that Ngong Road forest had gone an extra mile to employ scouts to assist in enforcement of forest rules and regulations through conducting patrols, monitor activities, report illegal activities and work with KFS officers to carry out arrests. They were also responsible for vetting of people accessing and leaving the forest sanctuary and other CFA facilities within the forest.

The investment by NRFA on scouts demonstrates that as compared to KICOFA, NRFA had put in place more effort and strategies to enhance enforcement of forest regulation. In order to enhance the participation of members of CFA in enhancing of forest rules and regulations, CFAs

should be involved in developing the rules as well as the processes and procedures of how the community will be involvement in enhancing enforcement. In addition, KFS should invest in training and giving incentives to scouts in order to boost their morale and capacity. Furthermore, the process of implementation of PFM requires consistent monitoring and evaluation by both the CFA members, KFS and other stakeholders in order to establish how well the system is performing.

5.4.4. Capacity Building initiatives

Capacity building plays an important role in bridging the knowledge gaps amongst community members and leaders in order to enhance performance. . The fact that most CFAs have been formed as new outfits to participate in forest management; capacity building of these community institutions is inevitable. The survey further sought to find out the number of capacity building initiatives the CFA committee members in Ngong Road and Kiptuget forests had been engaged in the past 12 months. The survey revealed that KICOFA and NRFA had engaged in 2 and 4 capacity building initiatives respectively. The initiatives in KICOFA entailed one day workshop on silvi-culture and onsite training on establishment of PELIS. On the other hand, the capacity building initiatives in NRFA entailed trainings on income generating activities, leadership, proposal writing and fund raising and one exchange programme. These findings revealed that NRFA was performing better than KICOFA in equipping its leadership to ensure success of CFA by organizing and implementing more capacity building initiatives.

The success of decentralized forest regime requires a leadership with in-depth explanations of the contents and implications of the new law. The challenge is compounded by the fact that new structures and players have come on board. In order to successfully implement PFM, KFS and leaders of the CFAs are adequately trained and equipped. Other studies have suggested that the organizational capacity levels differ from one CFA to the next whereby some CFAs have established systems to enhance their forest protection and enhance livelihoods. It has also been observed that most CFAs in Kenya do not have sufficient resources to recruit staff, lack proper policies, procedures, and administrative and operational systems to effectively implement their mandate amongst other issues (Ayemba *et al.*, 2014).

Studies have revealed that in places where capacity building of CFA leaders and members have been deliberately done, positive results have been reported while in areas that this have not been done or poorly unpleasant situation wrought with conflicts have been recorded. One of the key ways to build this capacity is through technical and financial support. In light of this, the survey sought to find out whether KICOFA and NRFA were receiving any form technical and financial support it was found out that majority of members of Ngong Road forest (97.50%) had received technical support to aid in process of participation in forest co-management. Key informants interview revealed that this support came in form of forest onsite trainings, workshops and seminars. The support included training on silvi-cultural and forest management practices. On the other hand, the survey revealed that 70.00% of KICOFA members had received technical support. The study established from key informants' interview that this was done by Kenya Forest Service officers. In these training sessions members received training on forest

management and implementation of PELIS. In regards to financial support, the study revealed that Ngong Road forest association was receiving financial support from donors, well-wishers and corporate organizations. On the other hand, the study realized that members of KICOFA had not received any financial support.

5.5 Conclusions and Recommendations

The GSA framework deployed to analyse the performance capacity of KICOFA and NRFA revealed that NRFA has a higher performance capacity in all the three variables decision making, connectivity and knowledge use capacities. The success of any organ of governance depends on its capacity to make effective decisions, leverage on networks, partnerships and connections and make use of information and available knowledge in conduct of its business. It was further found that Ngong Road forest had organized more capacity building initiatives to its members as compared to Kiptuget forests.

It is recommended that KFS should develop customized capacity building programmes for the CFAs in urban and rural forest that are responsive to the different social characteristics of urban and rural communities. This will be key in enhancing the capacity of rural CFAs to diversify their livelihoods and optimize on available opportunities. In this regard it is recommended that KFS and other stakeholders should move with speed to organize trainings for members of CFAs.

CHAPTER SIX: THE DIFFERENTIAL IN THE DETERMINANTS OF PARTICIPATION, FOREST ACTIVITIES AND THEIR CONTRIBUTION TO COMMUNITY LIVELIHOODS IN NGONG ROAD AND KIPTUGET FORESTS, KENYA.

Abstract

Forest conservation and management Act 2016 establishes community forest associations for the purposes of participation in forest management and enhancing community's livelihood. Studies of forests and community livelihoods have been central to the development of scholarship on PFM and livelihoods leaving out the status of PFM in urban forests. This study examines the difference in the determinants of participation, forest activities and their contribution to CFA members' livelihoods. Kiptuget forest in Baringo County and Ngong Road forest in Nairobi County were purposefully selected to represent rural and urban forests. The study utilized mixed methods where primary data was collected using questionnaires and interview of key informants while secondary data was collected through review of PFM technical reports, articles and publications. Quantitative data was analyzed using frequencies, percentages, tabulations, measures of central tendency and analysis of variance while qualitative data was analysis through content analysis. The survey revealed Ngong road forests had more motivating factors as compared to Kiptuget forest. In addition, members of NRFA derived more annual income from the forest as compared to KICOFA NRFA had performed better at 3.7 points out of 5 .0 than KICOFA in implementing initiatives aimed at enhancing forest conservation and IGA which scored 1.8 points. It is recommended that KFS invests on research to identify ways and means necessary to inform diversification of forest livelihoods in rural forests in Kenya as well as

training CFA members and leaders particularly in rural areas on entrepreneurship in order to enhance maximizing of the available opportunities in PFM.

6.1 Introduction

Participatory Forest Management (PFM) is a forest management approach that brings on board forest adjacent communities adjacent in management. The Kenya forest management legal framework has enabled operationalization of this system of forest management through the formation of Community Forest Associations (CFAs). It is further noteworthy that Constitution of Kenya gives a dynamic thrust to the concept of PFM as it contains bold and dynamic provisions for enhancing PFM including its laudable public participation requirement (Ayiemba *et al.*, 2014). CFAs encompasses efficient ways of achieving sustainable forest management with socioeconomic objectives and is perceived to be the best approach to help the country active involvement of forest adjacent communities and relevant stakeholders will enable Kenya to achieve the recommended 10% percent forest cover as set down under the new Constitution and reiterated in Vision 2030 and KFS Strategic Plan.

Review of literature has revealed that in several other developing countries in Africa and Asia, Participatory Forest Management (PFM) systems are playing a key role in enhancing sustainable participation of rural communities in forest management. This note withstanding, it is still clear that human activities are liable for degradation of the forests in these country(Angelsen *et al.*, 2014). Growth in population, extreme poverty, poor land tenure system, property rights over forests and lack of proper forest policy implementation and social political instability are the

major driving factors to these degradation. The challenges have been compounded by weak governance, insufficient budgetary allocation, lack of capacity building, and weak law enforcement (Tesfaye, 2011). Introduction of PFM in Kenya was expected to be a problem solving strategy to forest resources with open access hence promoting forest management sustainability (Ayiemba *et al.*, 2014)

The concept of community in PFM, community is regarded as a unified and homogeneous entity with locally evolved indigenous rules aimed at achieving equitable and sustainable resource management (Government of Kenya, 2016). Some scholars have suggested that in addition to this global consideration, it is important that social identities such as place of residence, gender, education, wealth and age are not be overlooked while characterizing community in PFM (Leach *et al.*, 1999). Studies on the nature of modern society has revealed that level of environmental concern is highly generalized (Bunge-Vivier *et al.*, 2017). Social sciences research that have considers factors that motivate a people environmental concern have led to identification of two lines of research where one is focused on sociodemographic factors associated with environmental concern and the other one focused on psychological determinants like values, attitudes and beliefs (Jatana and Paulos, 2017). One factor that has received considerable attention is place of residence modelled around urban and rural divide (Mertlet *et al.*, 2016).

Several disciplines, including the development fields, sociology, environmental studies and economics which most of them have been modelled around rural livelihoods have appreciated that forests and forest products play a key and fundamental role in the survival and the well-being

of rural poor (Angelsen *et al.*, 2014). According to Chao 2012, approximately 350 million of the world's poorest people mostly in developing countries entirely depend on forests for their survival. Other studies found out that rural populace engaged in multiple and diverse portfolios and strategies including farming and forest resources to support their livelihoods (Shackleton *et al.*, in 2002). As is the case with other developing countries, a large population of Kenyans particularly in rural areas lives adjacent to the forests and is dependent on the forest resource for their livelihoods. In Kenya, it has been found out that the forest adjacent community through CFAs engages in intensive farming, business activities and collection of fodder, water and firewood (Mutune *et al.*, 2015).

Other studies that have been done on CFAs have revealed that some of the CFAs since implementation have remained disorganized and as a result they have yielded varying levels of success in terms of ecological outcomes. This is an indication that PFM cannot be assumed as a blue print for successful collective action or be treated as a one size fits all solution (Ongugo *et al.*, 2008). In light of socio-economic and demographic pressure, the sustainability of forest management requires successful coordination and cooperation among users hence requiring an understanding of the determinants of successful collective action (Poteete and Ostrom, 2004).

In other studies it has been reported that the function of the associations remains largely undefined and as a result most decision making rights remain with Kenya Forest Service (Chomba *et al.*, 2015). Rural urban divides presents geo-location characterized by different sociodemographic and socioeconomic factors. As a result, the social structures upon which the community organizations are formed are different. Agrawal and Gibson 1999, suggested that it is

necessary that the diverse components of environmental resources are valued differently by different actors. Decentralization in Kenya has led to rapid urbanization which. As a consequence several forests around these urban areas can be categorized as urban forests. There is therefore need to establish the rural urban dynamics with a view of enhancing performance of CFAs. It is further worth noting that because PFM serves the needs and interest of the public it is required by law that all forests are managed according to clear management plans. The forest management plan is a specific statement of objectives that the community forest associations has from KFS with clear set of activities which when implemented will lead to achievement of PFM strategic objectives (KFS, 2014). Several studies done on CFAs in Kenya have given good insights on CFAs in various urban and rural forests. There however remains a gap on how the rural urban context influences the CFA activities. This study examines the difference in the determinants of participation, forest activities and their contribution to CFA members' livelihoods.

6.2 Theoretical Framework

Autonomy of the community in management of forest resource can be achieved by enhancing democratic procedures; key among them is inclusion of members in decision making and legitimization of forest access and benefit sharing. These have been termed as self- determination theory which is the very premise of motivation for participation (DeCaro and Stokes, 2013). In practice, self-determination theory holds the view that there exists varied types of motivation that are determined by the individuals needs and level of autonomy (Bidii and Ngugi, 2014). This motivation is expressed in terms of individuals' reasons for doing the activity and the degree to

which these reasons align with self-values and needs. The motivation to participate in PFM is driven by anticipated benefits emanating from participation (Kenya Forest Service, 2009).

In considering the PFM activities and its effects, the study adopted a motivation, activities and effect model as shown figure 3;

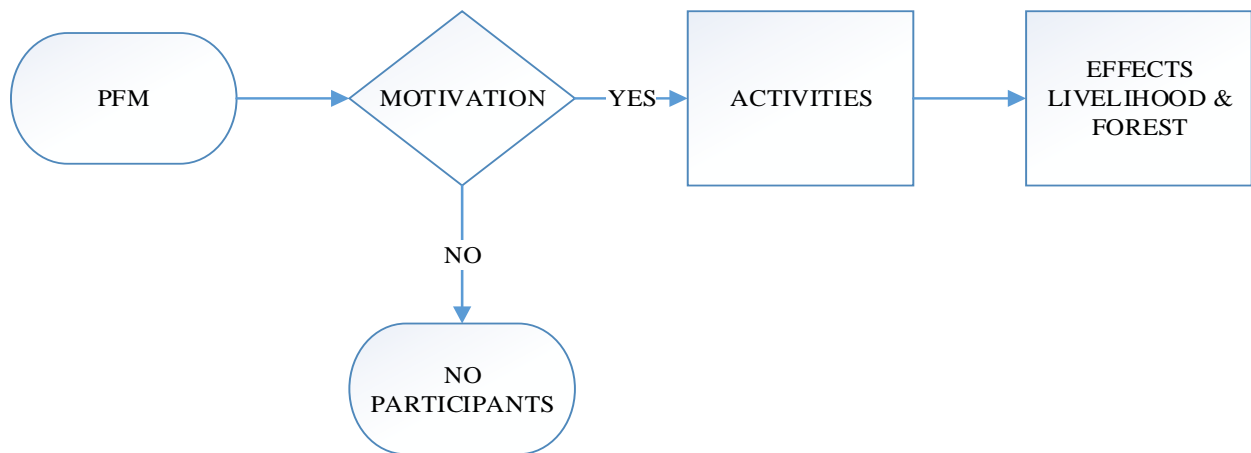


Figure 3: Motivation and Participation Model

In the model, motivation refers to drivers of why members choose to participate in PFM. These include economical gain, sports, cultural values, etc. These motivations are either material or non-material in nature. Community is made of people with wide range of background and characteristics as a result what motivates one group of persons is not what motivates the other. Rural urban divides presents communities with different characteristics. It is important to establish how these motivations shape the formation, functioning and performance of PFM. Activities, refers to both forest conservation based and economical based activities undertaken by CFA members as a group or as individuals while the effects are the actual and perceived changes on the forests and livelihood as a consequence of the activities.

6.3 Materials and Methods

The study adopted a comparative design where mixed methods of study were used. Ngong Road forest in Nairobi County and Kiptuget forest in Baringo County were purposefully selected to represent urban and rural forests respectively. The study targeted members of CFA and key informants. Primary data was collected using questionnaires, interview schedules and observation while secondary data was collected through review of gray literature, PFM technical reports, books, and peer reviewed articles and books. Qualitative data was recorded and analyzed by making summaries and content analysis. The quantitative data collected was coded in SPSS and analyzed using descriptive statistics. T test was used in doing comparison of the two sites to establish statistical difference. The results are presented by use of description and tables.

6.4 Results and Discussion

PFM cannot be conceived without understanding the nested interactions between external and internal motivators triggering participation of community members in forest management (Souto *et al.*, 2014). This section presents the motivators, activities and their effects on livelihoods in KICOFA and NRFA.

6.4.1 Motivations for Joining CFAs

The study sought to establish the different factors motivating community members to join community forest association in urban and rural forest. T test was conducted to find out how rural and urban contexts influence factors motivating members to participate in PFM and the results are shown in table 6;

Table 6: T test of factors motivating members to join CFAs

	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Improved financial status	30.380	207	.000	1.95673	1.8298	2.0837
Social Interactions	30.184	207	.000	1.92308	1.7975	2.0487
Forest protection and conservation	39.075	207	.000	2.25962	2.1456	2.3736
Appreciation of nature	26.618	207	.000	1.91827	1.7762	2.0603
Cultural and spiritual values	34.013	207	.000	2.06731	1.9475	2.1871
Sports and recreation	44.314	207	.000	2.49038	2.3796	2.6012
Enjoyment of forest Services	32.057	207	.000	2.06731	1.9402	2.1944
Extraction of forest products	28.497	207	.000	1.84135	1.7140	1.9687
Enabling microeconomic activities	28.456	207	.000	2.06250	1.9196	2.2054
Create Employment opportunities	29.459	207	.000	1.78846	1.6688	1.9082
Generate income	42.325	207	.000	2.51442	2.3973	2.6315

From the findings in the table 6, it is realized that in all the eleven identified motivators, the t test reveals that there is significant difference in the motivators in Ngong Road and Kiptuget forests. From this study it is evident that the socio-demographic and socio-economic factors in urban and rural areas influence the motivation of community members to join CFAs. It is thus clear that members of Ngong Road and Kiptuget forest are motivated more by different factors to participate in PFM.

According to Poteete and Ostrom 2004, in order to ensure sustainable forest management in light of socio-economic and demographic pressure, there is need for robust coordination and cooperation among users. It therefore means that the implementation of PFM must take into consideration the factors motivating community members in different contexts. Given that communities are embedded in larger systems and they respond to pressures and incentives, it is important to establish why people are motivated and engage in PFM. Studies that have asked similar questions have noted that community participation in community based natural resource management regimes relies on the existence of time-tested practices based on customary arrangements that have result to enhancement of livelihoods (Robinson, 2007).

6.4.2 Important User Group

Different people and motivated by different aspects of the forest to join CFA and as such they register for different user groups. In order to establish their priorities, the researcher sought to find out from members which user group ranked highest in their list of priorities and the table 7 shows how different user groups were ranked in Ngong Road and Kiptuget forests.

Table 7: CFA Members' Important User Group in Enhancing Livelihoods

USER GROUP	NRFA (%)	KICOFA (%)
Grazing	0.0	9.6
Firewood Collection	15.3	0.0
PELIS	8.3	90.4
Tree Nursery	20.3	0.0
Bee Keeping	26.5	0.0
Eco-Tourism	14.0	0.0
Sporting/Leisure	15.7	0.0

The results in table reveal that (90.4%) of the members of KICOFA were members of PELIS and considered it most important. 9.6% considered grazing as the most important user group. This result shows that out of all the available user groups and opportunities available in Kiptuget forest, two user groups were ranked of high importance by all the members of KICOFA. It further implies that these are the two active user groups from which community members find motivation to participate in forest conservation. On the other hand, the data reveals that out of the 7 user groups in Ngong Road forest 6 user groups were ranked of high importance by CFA members these are bee keeping (26.5%), Firewood (15.3%), PELIS (8.3%), tree nursery (20.3%), Eco-tourism (14.0%) and sporting (15.7%).

The findings reveal that Ngong road forest have more user groups ranked by members of high importance compared to Kiptuget forest. It is clear that in Kiptuget participation in forest management is hugely because of PELIS and grazing. Active and operational user groups in a forest station plays a key role in incentivizing participation of community members f forest management hence guaranteeing success of PFM. It should not be expected that there will be continued participation by forest adjacent communities without any form of incentive or benefits. Other studies have revealed that transferring the responsibility of forest resource management to CFA's, without transferring the corresponding rights is a common yet inefficient practice that has led to failure of CFAs (Musyoki *et al.*, 2016)

These findings suggest the difference in socio-demographic and socio-economic characteristics in urban and rural contexts influences the diversity of operation and active user groups in

participatory forest management. Studies done in India found out that lack of productive assets such as land and livestock was associated with low levels of community engagement in forest management (Gobeze *et al.*, 2016). In other studies, it has been suggested that the poor who are among the majority of the CFA members consider the forest as additional arable land while the rich forest maintenance as a way of diversifying their income sources (Lockwood, 2017). It can be argued that the findings of this results supports, at least partially, the general perception that ownership of more assets allows households to exploit more forest resources (Coulibaly-Lingani *et al.*, 2016).

This finding concludes that forests in rural areas either have few active and operational user groups or the rate of operationalization of user groups is slow compared to forests in urban forests. This findings supports the results of the research done in Rural Bolivian forests where it was found out even though the reforms provided extensive usufruct rights to rural community the implementation of the reforms were slow or totally failed whereby it was realized that less than a dozen local user groups acquired full forest concession rights during the first 7 years after reform implementation (Bartley *et al.*, 2016). The study further corroborates with the findings in other studies that have suggested that the forest adjacent community in rural areas still considers agriculture as the major source of livelihood (Phiri, 2009).

Active and operational forest user groups are key and fundamental for the success of PFM. Continued community participation will only come when the community members interest are taken into consideration by ensuing that forest stations have user groups that are of tangible benefit to the community (Ayiemba *et al.*, 2014). For the system to be successful there should be

sustainable natural resource management; benefit streams that exceed costs; and good governance. It should also be realized that “the ways in which local people realize the benefits of decentralized natural resource management differ widely as is the case with urban and rural context and as such operationalization of user groups should take into consideration contextual dynamics.

6.4.3 Income from Forests in Urban and Rural CFAs

Forests are important source of income to the forest adjacent community. The survey sought to find out the various avenues which members of CFA in Kiptuget and Ngong derived income from the forest and the findings are as shown in the table 8;

The survey revealed that members of NRFA and KICOFA engaged in diverse livelihood activities within Ngong Road and Kiptuget forests respectively. These activities and livelihood strategies include crop farming, firewood, and bee keeping tree nursery establishment, foraging fruits and vegetables, livestock keeping, business, and casual labor.

Table 8: Annual Average income (in Kenya Shillings) from forest per CFA member, 2017

Income Source	KICOFA (n=125)	NRFA (n=83)
Crop income	23,409	9,230
Firewood income	6,706	4,320
Charcoal income/briquette	0	1,500
Livestock income	15,810	2,340
Poles/timber	1,660	675
Honey	4,550	13,470
Papyrus reeds/Basketry	0	3,400
Herbs/medicine	500	100
Wild fruits and vegetables	1,300	90
Seeds and seedlings	1,230	3,240
Business	6,706	52,550
Total	61,931	90,115

NB: The values are in Ksh (Ksh 98 ≈ USD 1.0 in 2017)

The results reveal that crop income was the highest income earner in Kiptuget at an average of Kshs 23,409 per year. On the other hand business was the highest income earner for members of NRFA at Kshs 52,550 per year. This result suggest that agricultural activities in the forest is the major income source for members of Kiptuget Community Forest association while business and entrepreneurial activities were the highest income earner among members of Ngong Road forest association.

Research has suggested that socio-economic factors play a role in influencing participation in forest management under PFM. It has for instance been reported that poor households have a high opportunity cost of participation as compared to the rich thus implying that the poor do not benefit as much as the rich (Coulibaly *et al.*, 2011). The economic and labor survey of Kenya conducted in 2009 revealed that the mean monthly earnings in the urban areas were twice that of the rural areas. This indicates the much higher levels of disposable income in the urban areas as compared to rural areas (Oyvat and Githinji, 2017). These finding partially corroborates with the earlier studies as it is clear that CFA members in Ngong road forests are deriving more income from the forests as compared to members of Kiptuget forests. It is also worth noting that although this is the case, rapid urbanization has been found to lead to poverty, income inequality, unemployment, shortage of social amenities and environmental degradation and thus high income may not necessarily translate to more enhanced livelihoods of forest adjacent community in urban areas as compared to rural areas.

From this study, it is evident forest adjacent community in both urban and rural forests derive income from forest through different sources. It is this clear that forest in urban and rural Kenya

play a key role as income source in both urban and rural forests. These findings corroborates with findings of other studies that have suggested that forests contribute substantially to household per capita income and per capita cash income. By doing so it is an important buffer against extreme poverty and providing the opportunity to diversify livelihoods (Tesfaye, 2011). This study further reveals that rural and urban divides presents dynamics that differentiates the sources and the amounts of income the community derives from the forests. This study implies that investment in in income source in any forest should take into account the socio-cultural and socio-demographic factors. These factors determine dependency on the forest as well as the capacity and attitudes. Other studies have also found out that the decisions of community members on livelihood strategies including dependence on forest income are associated with socioeconomic and geographical factors (Tesfaye, 2011).It has further been found out the attitudes and intention of households towards participating in collective management are associated with level of income.

6.4.4 CFA activities in Ngong Road and Kiptuget forest

Participatory forest management serves the needs and interest of the public and hence as required by legal framework all forests should be managed according to clear management plans with clear objectives and specific activities which when implemented will lead to achievement of PFM strategic objectives. The survey found out that both Kiptuget and Ngong road forest association had a management plan a series of activities. The implementation of the activities by CFAs was evaluated in a scale of 5 and the results are as shown in the table 9;

Table 9: Evaluation of implementation of activities in forest management plans

Item	Level of Implementation	
	NRFA	KICOFA
Income generating Activities (IGAs)		
Involvement in high investment ventures	3	1
Identify suitable investments opportunities	4	1
Sourcing for investors	1	0
Promote extension services to members	5	4
Training on sustainable forest management business	2	0
Training on entrepreneurship	2	1
Training on basic budgeting and proposal writing skills	3	0
Introduction to funding opportunities-WDF, YEDF etc.	4	1
Joint study on forest biodiversity	5	5
Capacity build community on energy conservation	5	1
Training on PFM, silviculture and forest management	5	5
Joint forest monitoring and evaluation	5	3
Total	44	22
Mean	3.7	1.8

Implementation of activities in the forest management plan is fundamental in realizing the objectives of PFM. The survey revealed that forest management plans of Kiptuget and Ngong Road forest had thirteen areas of action that were common. The twelve areas can be categorized into forest conservation and income generating activities. The two categories of actions mirror the twin objectives of PFM and as such their implementation was important in achieving sustainable forest management and enhanced community livelihoods. Community forests associations (CFAs) with forest management plans is one of the indicators of the institutional changes that PFM has brought into forest management system. Other studies have however observed that the fact that CFAs have been formed to participate in forest management, its capacity to implement the forest management strategic goals need to be considered (Ayiemba *et al.*, 2014).

The survey considered twelve areas of action that were common in Kiptuget and Ngong Road Forest with a view of comparing their level of implementation. The results in table 9 reveals that in all the twelve areas of action, Ngong Road recorded higher level of implementation as compared to Kiptuget forest.

The analysis of the level of implementation revealed that, Ngong Road forest mean level of implementation was 3.7 points while Kiptuget forest mean level of implementation was 1.8 points out of the possible 5.0 points. It can be suggested that rural-urban divide presents factors that causes difference in the capacity of CFAs in these areas to implement activities set out in the management plan. From the findings, it is clear that urban forest presents characteristics that are favorable to enable the CFA implement its activities more than rural forests. It is therefore

evident that there are urban practices and systems that need to be considered with a view of helping the rural CFAs develop such or another practice and system that will play a role in enhancing its implementation of planned activities. Benchmarking and borrowing of best practices will be fundamental in capacity building ventures.

Studies have shown that the potential of PFM as a vehicle to promote sustainable forest management in both urban and rural forest provided that the capacity of institutions at local level is built and supported by the government agencies (Gobeze *et al.*, 2016). Other studies done in Kenya have suggested that for as long as the capacity of local level forest management institutions are still weak, and the financial incentives which will enable them to develop their capacity are yet to be defined, KFS will keep spending huge share of its resources in monitoring and law enforcement activities.

The results in table further reveal that across all the twelve identified areas of action in the forest management plans, it was evident that the CFAs in both Kiptuget and Ngong Road forest implemented some activities better than others. For instance both Ngong Road and Kiptuget forest scored 5 points in conducting joint study on biodiversity. On the other hand, Ngong Road scored 1 and Kiptuget scored 0 on sourcing of investors. This finding suggests in as much as rural urban divide presents factors that influence the implementation of forest management plans, some CFA activities need more focus than others both in rural and urban forests. These are activities that require high investment yet they have high impact in enhancing perceived and actual benefit to members that is important in ensuring sustainable forest management. Studies on implementation of PFM have demonstrated that funding is a prerequisite to the success of PFM

especially in its formation and stabilization process (Ayiemba *et al.*, 2014). The second PFM conference revealed that funding and financial capacity increases community awareness on the forest resource, attitude change on resource ownership and fund raising capacity towards sustainability. These factors are considered the major cause of disparity among User Groups and CFAs in regards to implementation of forest management plans and activities (Ayiemba *et al.*, 2014).

It has been suggested by other studies that financial and technical support accorded to CFAs influences not only the implementation but the quality of forest management plans developed. This is because the plan is influenced by the quality of research and information gathered and level of sensitization of stakeholders which depend on the level of funding (Ayiemba *et al.*, 2014). It is thus concluded that CFAs with financial capacity thus will be able to not only develop quality plans but will also be able to implement the activities in the plan.

6.5 Conclusions and Recommendation

Though PFM in urban and rural forest are operationalized under one legal framework in Kenya, community members in urban and rural forests are motivated by factors that are significantly different to join CFAs. This is due to different socio-economic and socio-demographic characteristics that are different in rural and urban forests. This notwithstanding the study realized that there were several similar experiences among the PFM in Ngong' Road and Kiptuget forest. Furthermore, the study found out that CFAs both in Kiptuget and Ngong Road forest have forest management plans with specific objectives and activities to be actualized by

CFAs. The study revealed that in both Kiptuget and Ngong Road forests there were common set of activities categorized into forest conservation and income generating activities.

Members of both Kitpuget and Ngong road forest receive income from the forest; the mean annual income for members of Ngong Road was than those of members of Kiptuget forest. The survey revealed that agricultural activities was the major income source in Kiptuget while business related activities was the major source of income in Ngong Road forest.

Forest resources in urban and rural forest play a role in the livelihoods of forest adjacent community. It is however important to note that the resource is finite and cannot meet all the needs and therefore the government through Kenya forest service should support development of alternative livelihood options for sustaining community interest and participation in forest management through financial support and capacity building of community members on management of IGAs particularly in rural forests where there is little reach from civil societies, corporate funders and other donors. Furthermore CFAs particularly in rural areas should be supported by the government to diversify the Income generation activities beyond PELIS and operationalize activities such as bee keeping and eco-tourism in order to reduce over dependence on the forest. Finally KFS should put in place mechanism to enable benchmarking and knowledge transfer through extension services between CFAs in different context in order to entrench best practices in the management of CFAs.

CHAPTER SEVEN: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

7.1 Summary

Kenya has been implementing PFM since 1997 and over that time several Community forest associations have been formed and operationalized. This however does not necessarily mean the CFAs have been able to realize the objectives and key challenges is diversity of the implementation approach adopted the level of implementation and the asymmetry in the participation. There are several factors that occasion these challenges but key among them is the social structure. Rural and urban areas are characterized by different socio-economic and sociodemographic factors which affect the social structure upon which local institutions are built including CFAs. Using Ngong road forest and Kiptuget forest representing urban and rural forest respectively, it was found out that Ngong Road Forest Association (NRFA) was constituted by a heterogeneous nature of members which included individuals from the forest adjacent community, corporate bodies and NGOs. As a result, the system of governance in Ngong Road forest association adopted a dual system where the corporate bodies and the NGOs joined the community in forming the executive committee of the CFA. On the other hand Kiptuget Community forest association (KICOFA) was comprised of homogenous memberships who are the individuals from the households around the Kitpuget forest. As a result KICOFA had a simple system of governance where members conducted grass root CBO elections to elect leaders who later on contest for CFA committee positions. The study revealed that KICOFA had a simple structure as envisaged in PFM guidelines however NRFA had a creative system of governance that was bringing other stakeholders on board.

The study further found out that NRFA did not only have members with higher formal education levels but also were exposed to more capacity building initiatives as compared to KICOFA. In regard to the composition of CFA members, it was realized that the youth age bracket were dismally represented in both NRFA and KICOFA membership.

In regards to participation, the study found out that CFA members meeting in Ngong Road forest was characterized with consistency and good attendance while KICOFA had no clear schedule of meeting and were held whenever it was necessary. Despite the fact that majority of members both in NRFA and KICOFA in some way they were involved in decision making the study revealed that majority of the members of Ngong Road forest involved at a consultative level of decision making while majority of the members of Kiptuget forest were involved at an informative level of decision making.

In regard to active user groups, the study found out that Ngong Road forest had more operational and active user groups as compared to KICOFA including . These user groups were not limited to tree nurseries, PELIS, sports and ecotourism. On the other hand, the survey revealed that PELIS was the most active and operation user group in KICOFA.

The GSA framework used to evaluate the performance capacity of CFAs revealed that in all the three functional areas of decision making, connectivity and knowledge use, NRFA exhibited

better performance capacity compared to KICOFA. It was further found out that Ngong Road forest received more financial and technical support as compared to Kiptuget forest.

In regard to implementation of activities it was found out that NRFA had performed better in implementing measures that were aimed at enhancing both forest conservation and income generating activities. This was done through several ways among them training on entrepreneurship and facilitation by funders and donors to pursue the ventures.

7.2 Conclusions

Different social contexts characterized by different socio-economic and sociodemographic factors influences participation. As such although there are several similarities across PFM in urban and rural forests, there are different participation characteristics in the different sites. This is as a result of difference in variety of CFA membership, education levels, economic activities, types of forests, forest management objectives and the resulting CFA governance structure.

Though forest governance structure has been devolved both in urban and rural forests the involvement of CFAs in decision making is still low. The rural geo-location characteristic presented factors that make CFA in urban areas have higher level of decision making as compared to their counterparts in rural areas.

CFAs organizational capacity levels differ from urban to rural. It is however clear that CFAs in Kiptuget forest lacks sufficient capacity to engage in PFM but Ngong Road forest have managed to come up with innovative approaches and several good practices that can be strengthened, replicated and scaled up. Urban areas presents factors that enable urban CFA have higher performance capacity as compared to rural CFAs. This is as a result of access to technical and financial support.

Rural urban divide influences the motivation for joining CFAs as well as the nature of activities that CFAs undertake in the forest and how they benefit from the activities. Rural CFAs remain largely agricultural while CFAs in urban areas have more diverse activities. For instance, PELIS was the main user groups and income earner for members of Kiptuget forest while members of Ngong Road forest had diverse sources of income and the main income earner was business.

CFAs both in urban and rural areas have forest management plans with some activities that are common. The challenge however is the capacity to implement these activities. Ngong road forest implemented most of its activities and ranked higher compared to Kiptuget forest.

7.3 Recommendations

Implementation of PFM in any forest should take into consideration of socio-economic and socio-demographic factors. This is important because it will help know what motivates different people to participate in forest management and align user rights to these motivations.

The forest conservation and management act 2016 through PFM has given forest adjacent communities the ability to participate in forest management. The CFAs should therefore be involved in the higher levels of decision making of and not just at the information level. Kenya forest service should therefore ensure that CFAs through its leadership is fully included in decision making activities.

Kenya forest service should put in place mechanism to operationalize dormant user groups particularly in rural forests with an aim of diversifying livelihood opportunities for forest adjacent communities.

In order to enhance the capacity of CFA, Kenya forest service puts in place training for CFAs in governance and leadership, organizational management and organizations sustainability. More emphasis should be placed on CFAs in rural areas which have little access to other training opportunities from civil societies and corporate organizations. In addition to this, KFS should work on building the partnership and networking capacity of CFAs with particular focus to rural areas where this capacity was found to be low.

Kenya forest should invest on ensuring that CFAs develop quality forest management plans and have a capacity to implement the activities there in. More emphasis should be put on CFAs in rural areas who have lower technical and financial support.

REFERENCES

- Abrar, J. M., and Inoue M. (2012). Drawbacks of Decentralized Natural Resource Management: Experience from Chilimo Participatory Forest Management Project, Ethiopia. *The Japanese Forest Society* 17: 30–36
- Abrar, J. M., and Inoue M., (2013). Exploring Decentralized Forest Management in Ethiopia Using Actor-Power-Accountability Framework: Case Study in West Shoa Zone. *Environment, Development and Sustainability* 15: 807–825. doi:10.1007/s10668-012-9407-z.
- Agrawal, A. and Gibson, C. (1999). Enchantment and disenchantment: The role of community in natural resource conservation. *World Development*, 27(4), 629-649
- Agrawal, A. and Gupta, K. (2005). Decentralization and Participation: The Governance of Common Pool Resources in Nepal's Terai. *World Development*, vol. 33, no. 7, pp. 1101-14.
- Agrawal, A., and Ostrom, E., (2008). Decentralization and community-based forestry: learning from experience. Pages 44-67 in E. L. Webb and G. Shivakoti, editors. *Decentralization, forests and rural communities: policy outcomes in South and Southeast Asia* Sage, London, UK
- Agrawal, A. and Ribot, J. C. (1999). Accountability in Decentralization: A framework with South Asian and West African cases. *The Journal of Developing Areas*, 33(4), 473–502. <https://doi.org/10.2307/4192885>
- Angelsen, A., Jagger, P., Babigumira, R., Belcher, B., and Wunder, S. (2014). Environmental Income and Rural Livelihoods : A Global-Comparative Analysis. *World Development* Vol.

64, pp. 512–528, 2014.

Arnold, J. M. (2001). *Twenty Five Years of Community Forestry*. FAO, Rome, 134p

Arnold J. M. and Bird, P. (1999). *Forests and Poverty Environment Nexus. UNDP/EC Expert Workshop on Poverty and Environment. Brussels, Belgium.*

Arnstein, S. (1969). A ladder of Citizen Participation. *Journal of American Institute of Planners* 35:216-24

Arts B., and Koning J., (2017) Community Forest Management: An Assessment and Explanation of its Performance Through QCA; *World Development* Vol. 96, pp. 315–325, 2017, doi.org/10.1016/j.worlddev.2017.03.014

Ayana, A. N, Vandenabeele N. and Arts, B. (2015). Performance of Participatory Forest Management in Ethiopia: Institutional Arrangement Versus Local Practices. *Journal of Critical Policy Studies* DOI: 10.1080/19460171.2015.1024703

Ayiemba,W., Mbithi, D., Nahama, E., Kagombe, J., Njuguna, L., W. Njuguna, L., Laigong, J., & Mwanzia, J. (2014). Proceedings of the 2nd National PFM Conference: Enhancing Participatory Forest Management under the devolved governance structure. July 15-16, 2014. Kenya Forestry Research Institute, Muguga, Kenya.

Balooni, K. and Inoue, M. (2007). Decentralized Forest Management in South East Asia. *Journal of Forestry* 105, 414-420

Bartley, T., Andersson, K., Jagger, P., and Laerhoven, F. Van. (2016). The Contribution of Institutional Theories to Explaining Decentralization of Natural Resource Governance. *Society & Natural Resources* ISSN:, 1920(June).
<https://doi.org/10.1080/08941920701617973>

Besley, T., Monalvo J. and Reynal-Querol, M. (2011). Do Educated Leaders Matter? *The*

Economic Journal, 121(554):205-205, DOI: [10.1111/j.1468-0297.2011.02448.x](https://doi.org/10.1111/j.1468-0297.2011.02448.x)

- Bidii, H.K., and Ngugi, P.K. (2014). Challenges Impeding the Effective Implementation of Community-Based Natural Resource Management Projects in Kenya: A Case Study of Mji wa Huruma Village in Nairobi, Kenya. *International Journal of Social Sciences Management and Entrepreneurship*, 40(1(2):141-173, August 2014)
- Brenguer J., Corraliza J. A, and Martin R., (2015) Rural-Urban Differences in Environmental Concern, Attitudes, and Actions; *European Journal of Psychological Assessment* .
- Bryson, J.M (2004). What to Do whEN Stakeholders Matter: Stakeholder Identification and Analysis Techniques. *Public Mangement Review*, 6 (1), 21-53
- Bunge-Vivier, V. and Martínez-Ballesté, A, (2017) Factors that influence the success of conservation programs in common property resources in Mexico, *International Journal of the Commons* Vol. 11, no 1 2017, pp. 487–507 URL:<http://www.thecommonsjournal.org> DOI: 10.18352/ijc.718
- Carmago-Borges, C. and Rasera E.,F. (2013) Social Constructionism in the Context of Organization Development: Dialogue, Imagination and Co-Creation as Resources of Change. *SAGE Open* SAGE DOI: [10.1177/2158244013487540](https://doi.org/10.1177/2158244013487540)
- Carney, D. (2002). Sustainable Livelihoods Approaches: Progress and Possibilities for Change. Department of International Development, London. Available at www.livelihoods.org
- Carter, L.A. (1990). The Wildlife Survey of Skeleton Coast Park, Damaraland and Kaokoland, North West Namibia: *Report to the Commission of the European Communities*.
- Chao, S. (2012) Forest People: Numbers Across the World. *Forest Peoples Programme, United Kingdom*
- Chomba, S., Treue, T., and Sinclair, F. (2015). Forest Policy and Economics The political

- Economy of Forest Entitlements : Can Community Based Forest Management Reduce Vulnerability at the Forest Margin? *Forest Policy and Economics*, 58, 37–46.
<https://doi.org/10.1016/j.forpol.2014.11.011>
- City Council of Nairobi (2007). Green Space and the City; A Plan to Conserve Ngong' Road Forest. City Council of Nairobi, Kenya.
- Colfer, C.J.P., Dahal, G.R. & Capistrano, D. (2008) (Eds). Lessons from forest decentralization: money, justice and the quest for good governance in Asia Pacific. London: Earthscan/CIFOR
- Conley, A., and Moote, M. A. (2017). Evaluating Collaborative Natural Resource Management. *Society and Natural Resources* 16:5, 371-386, DOI: 10.1080/08941920309181
- Coulibaly-Lingani, P., Svadogo, P., Tigabu, M., and Oden, P. (2011). Factors influencing people' participation in forest management program in Burkina Faso, West Africa. *Forest Policy and Economics*, 13, 292–302
- Coulibaly-Lingani, P. (2016). Appraisal of the Participatory Forest Management Program in Southern Burkina Faso. Doctoral Thesis, Swedish University of Agricultural Sciences
- Dale, A., Vella, K. and Potts, R. (2013) Governance System Analysis: A framework for reforming governance systems. *Journal of Public Administration and Governance* 3(3); 162-87. doi:10.5296/jpag.v3i3.4385
- Davidson, J. Lockwood, M. (2006). Governance Principles for Regional Natural Resource Management. *Society and Natural Resources* 23(10):986-1001; DOI: 10.1080/08941920802178214
- Dean, J. W. and Sharfman, M. P. (1993) The Relationship between Procedural and Rationality

and Political Behaviour in Strategic Decision Making; *Decision Sciences*, 24 (6), 1069-1083

DeCaro, D. A., and Stokes, M. K. (2013). Public Participation and Institutional Fit: A social-psychological perspective. *Ecology and Society*, 18(4). <https://doi.org/10.5751/ES-05837-180440>

DFID (1999). Framework of Sustainable Livelihoods. *Department for International Development*.

Dourojeanni, M. J. (2007). Community participation in forest management, (July), 16–20.

DRSRS and KFWG, 2006. Changes in Forest Cover in Kenya's five water towers, 2003-2005. Department of Resource Surveys and Remote sensing and Kenya Forests Working Group, Kenya.

Edmunds, D. and Wollenberg, E. (Eds.) (2003). Local Forest Management: The Impacts of Devolution Policies. Earthscan London, 208 p.

Ellis, F., (2000). Rural Livelihoods and Diversity in Developing Countries. Oxford University Press, Oxford.

FAO (2005) Global Forest Resource Assessment 2005: Progress Towards Sustainable Forest Management. *Forestry Paper No. 147, FAO Rome*.

FAO. (2016). State of the World's Forests; Forests and Agriculture: Land-Use Challenges and Opportunities. FAO, Rome

Fiorino, D. J. (1990). Citizen Participation and Environmental Risk: A Survey of Institutional Mechanisms. *Science, Technology & Human Values* 15 (2): 226–43.

Fisher, j. (2010) Systems Theory and Structural Functionalism. In 21st Century Political Science; A reference handbook, ed. J. Ishiyama and M. Breuning, Vol. 71-80. Los Angeles, CA: Sage

Freeman, R. Edward (2010), Strategic Management: A Stakeholder Approach, Cambridge:

Cambridge University Press.

Gastil, John (2000), *By Popular Demand: Revitalizing Representative Democracy through Deliberative Elections*, Berkeley: University of California Press.

Gedikli, B. (2009). The Role of Leadership in the Success of Participatory Planning Processes Experience From Turkey. *European Urban and Regional Studies*, 16(2), 115–130.
<https://doi.org/10.1177/0969776408101684>

Gill, S., Ross, W., and Panya, O. (2016). Moving Beyond Rhetoric: The need for Participatory Forest Management with the Jakun of South-East Pahang, Malaysia. *Journal of Tropical Forest Science Vol. 21, No. 2 (April 2009), Pp. 123-138, 21(2), 123–138.*

Gobeze T, Bekele M and Lemenih M, Kassa H (2016) Participatory forest management and its impacts on Livelihoods and Forest Status: The Case of Bonga Forest in Ethiopia. *Int For Rev 11:346–358*

Government of Kenya. (2005). Kenya Forest Act, 2005. Government Press

Government of Kenya. (2010). Constitution of the Republic of Kenya, 2010

Government of Kenya. (2016). Forest Conservation and Management Act, 2016. *Kenya Gazette Supplement, 155(34), 677–736.*

Hansen, Z., Owan, H. and Pan, J. (2006) The Impact of Group Diversity on Performance and Knowledge Spillover – An Experiment in a College Classroom. *NBER working paper series, Working Paper 12251 <http://www.nber.org/papers/w12251>*

Harrison, E. (2002). The Problem with Locals :Partnership and Participation in Ethiopia. *Development and Change, 33(4), 587-610.*

Huddart, E., K.,Beckley, T. M., McFarlane B., L., and Nadeau S. (2009) Rural-Urban

Differences in Environmental Concern in Canada Rural Sociology 74(3), 2009, pp. 309–329 DOI 10.1526/003601109789037268

IAP2 2003, 'Core Values for the Practice of Public Participation', Foundations of Public Participation, viewed 29 April 2007, DOI International Association for Public Participation, <www.iap2.org/corevalues/index.shtml>.

Innes, Judith E. and David E. Booher (2010), *Planning with Complexity: An Introduction to Collaborative Rationality for Public Policy*, London: *Routledge*.

Isyaku, U., Chindo, M. and Ibrahim, M. (2011). Assessing Community-based Natural Resources Management at Lake Naivasha, Kenya. *Canadian Center of Science and Education ,Environment and Natural Resources Research, Vol. 1, No. 1; December 2011*

Jacobs, L. R., Fay L. C. and Michael X. Delli Carpini (2009), *Talking Together: Public Deliberation and Political Participation in America*, Chicago, IL: University of Chicago Press.

Jatana, G. and Paulos, Z. (2017) Farmer's Participation in Participatory Forest Management and Factors Affecting its Performance (The Case of Sodo Zuriya District, Wolaita Zone , Ethiopia) *Journal of Economics and Sustainable Development* ISSN 2222-1700 (Paper) ISSN 2222-2855 (Online) Vol.8, No.9, 2017

John, P., (2009) Can Citizen Governance Redress the Representative Bias of Political Participation? *Public Administration Review, May/June, 2009. [Online]Available at <http://onlinelibrary.wiley.com/doi/10.1111/j.1540-6210.2009.01995.x/pdf>*

Kalekye, A., D. (2016) Determinants of Citizen Participation in Devolved Governance in Kenya; A Case Study of Machakos County. Masters Thesis, University of Nairobi

- Kanel, K.R. and Dahal, G.R. (2008). Community forestry policy and its economic implications: an experience from Nepal. *International Journal of Social Forestry* 1(1), 50-60.
- Kauzya, J.M., (2007). Political Decentralization in Africa: Experiences of Uganda, Rwanda and South Africa. In: Cheema, G.S. & Rondinelli, D.A., eds. 2007. Decentralizing Governance: Emerging Concepts and Practices. *Washington: Brookings Institution Press. Pp. 75-91*
- Kenward, R., Whittingham, M., Arampatzis, S. Manos, B., Hahn, T., Terry, A. and Rutz, C. (2011) Identifying governance strategies that effectively support ecosystem services, resource sustainability, and biodiversity. *Proceedings of the National Academy of Sciences* 108 913):5308-12.doi:10.1073/pnas.1007933108
- Kenya Forest Service. (2009). Making Participatory Forest Management work in Kenya Policy Brief. Kenya Forest Service, Kenya
- Kenya Forest Service. (2015). Kiptuget Participatory Management plan 2015-2019.
- Kenya Forest Service and Government of Kenya (2007). Forest Law and Enforcement and Governance, GoK
- KHRC. (2010). Harmonization of Decentralized Development in Kenya: Towards Alignment, Citizen Engagement and Accountability. Nairobi: KHRC and SPAN.
- Koech, C. K, Ongugo, P. O., Mbuvi, M. T. E., and Maua, J. O. (2009). Community Forest Associations in Kenya: challenges and opportunities. *Kenya Forestry Research Institute.*
- Kosgey A.B. (2015). An Assessment of Implementation of Participatory Forest Management (PFM) by Ngong Road Community Forest Association (CFA) in Nairobi County, Kenya. Msc Thesis, Kenyatta University, Kenya.
- Leach, M., R. Mearns and I. Scoones. (1999). "Environmental Entitlements: Dynamics and

Institutions in Community-Based Natural Resource Management.” *World Development* 27:225–47

Losindilo, E., Mussa, A. and Akarro, R. (2010). Some Factors That Hinder Women Participation in Social, Political and Economic Activities in Tanzania. *Arts and Social Sciences Journal, Volume 2010: ASSJ-4*

Ludeki, J.V., Wamukoya, G.M., and Walubengo, D. (2006): Environmental Management in Kenya: A Framework for Sustainable Forest Management in Kenya - Understanding the Draft Forest Policy and Forests Act, 2005

Lockwood, M., Davidson, J., Curtis, A., Stratford, E., Lockwood, M., Davidson, J., Stratford, E. (2017). Governance Principles for Natural Resource Management Governance Principles for Natural Resource Management, 1920(January). <https://doi.org/10.1080/08941920802178214>

Measham, T. G. and Lumbasi, J. A. (2013). Success factors for community- based natural resource management (cbnrm): Lessons from kenya and australia. *Environmental management*, 52(3):649—659

MENR (2007). Participatory forest management Guidelines. Ministry of Environment and Natural Resources, Nairobi. MEWNR 2014. Forest Policy, 2014. Ministry of Environment, Water and Natural Resources, Nairobi

Merlet, M. and Fraticelli, M., (2016)Protecting Forests, Improving Livelihoods – Comparing Community Forestry in Cameroon and Guatemala European Union ISBN: 978-1-906607-62-3

Ministry of Environment and Forestry (2018). Taskforce Report on Forest Resources Management and Logging Activities in Kenya, Government of Kenya

Mogoi, J., Obonye E., Ongugo, P., Oeba, V. and Mwangi, E. (2012). Communities, Property

- Rights and Forest Decentralisation in Kenya: Early Lesson from Participatory Forest Management. *Conservation and Society* 10(2): 182–194.
- Mogoi, J., Obonyo, E., Ongugo, P., Oeba, V., & Mwangi, E. (2016). Communities , Property Rights and Forest Decentralisation in Kenya : Early Lessons from Participatory Forestry Management, *10(2)*, 182–194. <https://doi.org/10.4103/0972-4923.97490>
- Moss, R.W. (1988): Nairobi A to Z. A Complete Guide. Oxford University Press. Muigua, K. (2014). Towards Meaningful Public Participation in Natural Resource Management in Kenya, 1–31.
- Muchara, B., Ortmann, G., Wale, E., and Mudhara, M. (2014). Collective action and participation in irrigation water management: A case study of mooi river irrigation scheme in kwazulu-natal province, south africa. *Water SA*, 40(4):699—708.
- Mugo E., Nyandiga C., and Gachanja M. (2010). Development of Forestry in Kenya (1900-2007): challenges and lessons learnt. Kenya Forestry Working Group, Kenya.
- Mukwanda G. and Manatsa D. (2012). Assessment of Community-based Natural Resource Management in the Savannas Using the Capacity Continuum - Multiple Drivers Model. *Journal of Human Ecology* 40(1): 69-84 (2012)
- Musyoki, J. K., Mugwe, J., Mutundu, K. & Muchiri, M. (2013): Determinants of Household Decision to Join Community Forest Accociations: A Case Study of Kenya, *ISRN Forestry*, Vol. 2013, 10 pages, Research Article available at: <http://dx.doi.org/10.1155/2013/902325>
- Musyoki J. K., Mugwe, J., Mutundu K. and Muchiri M. (2016). Factors influencing level of participation of community forest associations in management forests in Kenya. *Journal of Sustainable Forestry*, 35:3, 205-216, DOI: 10.1080/10549811.2016.1142454
- Mutumukuru-Maravanyika, T. (Ed.) (2010). Can we learn our way to sustainable management?

- Adaptive collaborative management in Mafungausti State forest, Zimbabwe *CERES Research School for Resource Studies for Development*, Wageningen University, Wageningen, the Netherlands
- Muthoni, M., T. (2012). Factors influencing effective conservation and management of Donduri forest in Nakuru North District, Nakuru County, Kenya Unpublished work
- Mutune, J. M. (2015). Livelihood Impacts of Decentralized Forest Management: A Case Study of Eastern Mau Forest Reserve, Kenya. PhD Thesis, University of Nairobi
- Mutune J.M., Wahome, R. G. and Mungai, D. N. (2015) Local Participation in Community Forest Associations: A Case Study of Sururu and Eburu Forests, Kenya. *International Journal of African and Asian Studies* Vol.13, 2015
- Mutune J.M. and Lund J. F. (2016) Unpacking Impacts of Participatory Forestry Policies: Evidence from Kenya. *Forest Policy Economics* 69 (2016) 45–52
- Myhren, S. M. (2007). Rural Livelihood and Forest Management in Mount Elgon , Kenya. Mater thesis. Noragric, Department of International Environment and Development Studies, Norwegian University of Life Science, Norway.
- Nairobi City Council (2007). Green Space and the City: A plan to Conserve Ngong Road Forest. Nairobi City Council, Kenya.
- Ngece N., Kakuru W. and Kimani K. (2007). Conflict management and community development-Projects as incentives for partners to participate in Participatory Forest Management (PFM)-The case of Loita and Lembus Communities in Kenya.In: Participatory Forest Management (PFM), Biodiversity, and Livelihoods in Africa. Proceedings of an international conference. 19-21 March 2007. Addis Ababa, Ethiopia. Pp. 171-189.
- Nthuku, J. S. (2016). An Assessment of the Role of Community Forest Association in the

Management of Karura Forest Kenya. *Mastes Thesis*

- Ogada, J.M. (2012). Forest Management Decentralization in Kenya: Effects on Household Farm Forestry Decisions in Kakamega. Paper presented at the International Association of Agricultural Economists (IAAE) Triennial Conference, Foz do Iguacu, Brazil, 18-24 August, 2012.
- Ogachi, O. (2016). Economic Reform , Political Liberalization and Economic Ethnic Conflict in Kenya. *Africa Development / Afrique Et Développement*, 24(1/2), 83-107. Retrieved from <http://www.jstor.org/stable/24484539>.
- Ogwen D.O., Opanga P.S. and Obara A.O. (eds (2009). Forest Landscape and Kenya's Vision 2030. Proceedings of the 3rd Annual Forestry Society of Kenya (FSK) Conference and Annual General Meeting held at the Sunset Hotel, Kisumu. 30th September - 3rd October, 2008
- Okumu, B. and Muchapondwa, E. (2017) Determinants of Successful Collective Management of Forest Resources: Evidence from Kenyan Community Forest Associations; Economic Research Southern Africa
- Oksanen, T., Gachanja, M., and Anni Blåsten, I. (2011). Strategy Note for Forest Governance Reform in Kenya. *MMMB Programme, Kenya*.
- Ongugo, P. O. (2007). Participatory Forest Management in Kenya : Is There Anything for the Poor ? The Precursor for PFM, (September), 1–10.
- Ongugo, P.O., Mogoi, J.N., Obonyo, E., Oeba, V.O., (2008). Examining the roles of community forest associations in the decentralization process of Kenyan forests. Paper Presented to the IASC Conference 11-19th July 2008, England.

- Organisation for Economic Co-operation and Development [OECD]. (2012). Strategic Environmental Assessment in development practice: A review of recent experience, OECD Publishing.
- Osei-kufuor, P., Adeolu, I., & Bakare, O. (2013). Conceptualizing Institutionalised Decentralisation: Implications for Competing Theories in Development. *International Journal of Humanities and Social Science Invention*, 2(9), 32–45.
- Oyvat C. Githinji, M. (2017); Migration in Kenya: Beyond Harris-Todaro : Greenwich Political Economy Research Centre, University of Greenwich
- Ozawa, C. P. (2012), ‘Planning resilient communities: Insights from experiences with risky technologies’, in Bruce Evan Goldstein (ed.), Collaborative Resilience: Moving through Crisis to Opportunity, Cambridge, MA: MIT Press, pp.19–38.
- Paul, S. & Chakrabarti, S. (2011). Socio-economic issues in forest management in India. *Forest Policy and Economics* 13(1), 55-60.
- Petheram, R.J., Stephen, P. & Gilmour, D. (2004). Collaborative forest management: a review. *Australian Forestry* 67, 137-146.
- Phiri, M. (2009). Evaluation of the Performance of Joint Forest Management (JFM) Programme: Case of Dambwa Forest Reserve in Livingstone District , Zambia by, (December).
- Polansky, C. (2003). Participatory forest management in Africa: lessons not learned. *International Journal of Sustainable Development & World Ecology* 10(2), 109 - 118.
- Poteete, A.R. & Ostrom, E. (2004). Heterogeneity, group size and collective action: the role of institutions in forest management. *Development and Change* 35(3), 435-461.
- Potts, R., Vella, K., Dale, A., & Sipe, N. (2016). Evaluating Governance Arrangements and

- Decision Making for Natural Resource Management Planning: An Empirical Application of the Governance Systems Analysis Framework. *Society & Natural Resources An International Journal*, 1920(January 2017). <https://doi.org/10.1080/08941920.2016.1185557>
- Quick, K. S.,and Bryson, J. (2016). Theories of public participation in governance, 20(February), 161–176.
- Reardon, T. & Vosti, S. A. (1995) Links between rural poverty and the environment in developing countries: Asset categories and investment poverty. *World Development*, 23(9), 1495-1506.
- Ribot, J. C. (2002). African Decentralization- Local Actors, Powers and Accountability. *UNRISD Programme on Democracy, Governance and Human Rights*, (8).
- Ribot, J.C., (2004). Waiting for democracy. The Politics of Choice in Natural Resource Decentralization. World Resources Institute, Washington DC.
- Ribot, J. C. (2005). Choosing Representation: Institutions and Powers for Decentralization Natural Resource Management. *The Politics of Decentralization: Forests, Power and People*.
- Robinson, (2007). Does decentralization improve equity and efficiency in public service delivery provision? *IDS Bulletin. Volume 38 Number 1 January 2007. Pp. 7-17*. [Online] Available at <http://onlinelibrary.wiley.com/doi/10.1111/j.1759-5436.2007.tb00333.x/pdf>
- Saito-Jensen, M., Nathan, I. & Treue, T. (2010). Beyond elite capture? Community-based natural resource management and power in Mohammed Nagar village, Andhra Pradesh, India. *Conservation and Society (in press)*
- Salbitano F., Borelli, S., Conigliaro M., Chen Y., (2016) Guidelines on urban and peri-urban forestry. FAO

- Schlozman, Kay Lehman and Henry E. Brady (2012), *The Unheavenly Chorus: Unequal Political Voice and the Broken Promise of American Democracy*, Princeton, NJ: Princeton University Press.
- Schreckenberg K, Luttrell C, Moss C (2006) *Forest policy and environment programme: Grey literature Participatory Forest Management: An overview*
- Senganimalunje, T. C., Chirwa, P. W., Babalola, F. D., & Graham, M. A. (2015). Does participatory forest management program lead to efficient forest resource use and improved rural livelihoods? Experiences from Mua-Livulezi Forest Reserve , Malawi. *Agroforestry Systems*, (2004). <https://doi.org/10.1007/s10457-015-9826-6>
- Shackleton, S., B. Campbell, E. Wollenberg, and D. Edmunds. (2002). Devolution and community-based natural resource management: Creating space for local people to participate and benefit? *ODI Natural Perspectives No. 76. London: Overseas Development Institute*
- Sikor, T. (2006). Analyzing community-based forestry: Local, political and agrarian perspectives. *Forest Policy and Economics* 8(4), 339-349.
- Souto, T., J. L. Deichmann, C. Núñez, and A. Alonso. 2014. Classifying conservation targets based on the origin of motivation: implications over the success of community-based conservation projects. *Biodiversity Conservation* 23:1331-1337. <http://dx.doi.org/10.1007/s10531-014-0659-9>
- Takahashi R, Todo Y (2012) Impact of community-based forest management on forest protection: evidence from an aid-funded project in Ethiopia. *Environment Management* 50: 396–404.

- Talley, J. L., Scheneider J. and Lindquist, E. (2016). A Simplified Approach to Stakeholder Engagement in Natural Resource Management: The Five Feature Framework; *Ecology and Society* 21(4):38. <https://doi.org/10.5751/ES-08830-210438>
- Taylor, P.L. (2000). Producing more with less? Community forestry in Duranga, Mexico in an era of trade liberalization. *Rural Sociology* 65(2), 253-274.
- Temesgen, Z., Lemenih, M., (2012). Gaps Assessment and Analysis of Participatory Forest Management Activities in Ethiopia, MoA. Addis Ababa, Ethiopia
- Tesfaye, Y., Roos, A., Campbell, B.M., Bohlin, F., (2011). Livelihood strategies and the role of forest income in participatory-managed forests of Dodola area in the bale highlands, southern Ethiopia. *For. Policy Econ.* 13, 258–265.
- Tesfaye, Y., Roos, A., Campbell, B. J., & Bohlin, F. (2017). Factors Associated with the Performance of User Groups in a Participatory Forest Management around Dodola Forest in the Bale Mountains , Southern Ethiopia. *The Journal of Development Studies* ISSN:0022-0388 (Print) 1743-9140 (Online) *Journal Homepage: <http://www.tandfonline.com/loi/fjds20>* *Factors*, 388(January). <https://doi.org/10.1080/00220388.2012.714123>
- Thenya, T., Wandago, B and Nahama E. T. (2007). “Participatory forest management experience in Kenya (1996–2006),” in Proceedings of the 1st National Participatory Forest Management Conference, KEFRI Headquarters, Nairobi, Kenya.
- Thygesen, S. H., Løber, T., Skensved, E. M., & Hansen, C. P. (2016). Implementation of Participatory Forest Management in Kenya : a case study of Karima Forest. *BioOne-International Forestry Review*, 18(3), 357–368.
- Tsegaye, G., B. Melaku, L. Mulugeta, and K. Habtemariam. (2009). “Participatory Forest Management and Its Impacts on Livelihoods and Forest Status: The Case of Bonga Forest in

- Ethiopia.” *International Forestry Review* 11 (3): 346–358. doi:10.1505/ifor.11.3.346.
- Tumusiime, D.,M. (2006). Dependence on environmental income by households around Rwenzori Mountain National Park, Western Uganda. Msc. Thesis, Norwegian University of Life Science, UMB.
- UNDP (2009), Human Development Report 2009: Overcoming Barriers: Human Development and Mobility, United Nation Development Programme: New York
- Verba, S. Schlozman , K.L & Brady , H. (1995) .Voice And Equality : Civil Voluntarism In American Politics .Cambridge Ma: Harvard University Press
- Wakjira, D. T., Fischer, A., & Pinard, M. A. (2013). Governance Change and Institutional Adaptation: A Case Study from Hareenna Forest, Ethiopia. *Environmental Management* (2013) 51:912–925, (DOI 10.1007/s00267-013-0017-9), 912–925. <https://doi.org/10.1007/s00267-013-0017-9>
- WCED, World Commission on Environment and Development (1987), *OurCommonFuture* (Oxford University Press, Oxford).
- Western, D. and Wright, R. (1994), “The background to community-based conservation”, in Western, D. and Wright, R. (Eds), *Natural Connections: Perspectives in Community-based Conservation*, Island Press, Washington, DC.
- Winberg, E. (2010). Participatory Forest Management in Ethiopia. *Practices and Experiences*, (June), 1–41.
- World Bank. (2000). *Entering the 21st Century: World Development Report 1999/2000*. Oxford, Oxford University Press
- World Bank (2001) *World Development Report 2001 Attacking Poverty*. Washington, DC, World Bank data. Cambridge, MA: MIT Press.

World Bank (2004). *Sustaining forests: A development strategy*. Washington, DC: The World Bank.

World Bank (2007). *World Development Report: Agriculture for Development*. The World Bank

Yang, K., and Pandey, S.K., (2011). Further Dissecting the Black Box of Citizen Participation: When does Citizen Involvement Lead to good outcomes? *Public Administration Review*. Volume 71, Issue 6, pp. 880-892, November/December 2011. [Online]Available at <http://onlinelibrary.wiley.com/doi/10.1111/j.1540-6210.2011.02417.x/pdf>

Yemiru, T., Roos, A., Campbell, B. M., and Bohlin, F. (2010). Forest Incomes and Poverty Alleviation under Participatory Forest Management in the Bale Highlands, Southern Ethiopia. *International Forestry Review*, 12(1), 66–77.

Yemshaw Y. (2007). Collaborative forest management in Africa. In limbo? In: Participatory Forest Management (PFM), Biodiversity, and Livelihoods in Africa. *Proceedings of an international conference. 19-21 March 2007. Addis Ababa, Ethiopia. Pp. 190-201.*

APPENDICES

APPENDIX I: RESEARCH STUDY QUESTIONNAIRE (CFA MEMEBERS)

STATEMENT OF CONFIDENTIALITY

Good Morning / Afternoon / Evening.

My name is Victor Boiyo of National ID number 25105734. I am a student at the University of Nairobi conducting research for my PhD degree in Environmental Governance and Management. In this research I seek to assess **the Implementation and Performance of Participatory Forest management system in Urban and rural forests in Kenya**

It is in this regard that I kindly request your participation in this research by filling up this questionnaire.

NB: The information given through this questionnaire will be treated with utmost confidentiality and used purely for research purposes

GENERAL INFORMATION

Personal Information

Name of CFA:.....Forest Station:.....

Sex: [1] Male [2] Female

Age: [1] (18-25) [2] (26-35) [3] (36-45) [4] (46-55) [5] (56 and above)

Education Level: [1] Primary [2] Secondary [3] Certificate/Diploma [4] Degree/Postgraduate

Primary Occupation [1] Farmer [2] Business [3] Professional [4] Casual

[5] Others.....

CFA ACTIVITIES AND EFFECTS

Which is the MOST important User group you are registered under the CFA?

[1] Grazing [2] Grass cutting [3] Fuel wood collection [4] Cultivation/PELIS

[4] Tree Nursery/ Seedlings Production [5] Bee Keeping [6] Others (specify).....

Which OTHER user group(s) are you registered in

.....
.....
.....

For the last 12 months have you derived any product from the forest? [1] Yes [2] No

If YES, Which product rates high in your Priority? [1] Firewood [2] Fodder for livestock
[3] Food through cultivation [4] Poles / posts [5] Timber [6] Honey [7] None

[8] Others (specify).....

Which other products have you derived over this time?.....

How has availability of various wood products changed after CFA introduction?

[1] Increased [2] Decreased [3] Same

If there is any change, what are the reasons for the change?.....

.....

Besides the products, do you benefit from any service of the forest? [1] Yes [2] NO

What is the nature of the service? [1] Recreational [2] Economical [3] Religious [4] Social

If YES, what are these services?

.....

Overall, how would you say the existence of the CFA has affected the benefits that you get from the Forest?

[1] Large Negative Effect [2] Small Negative Effect [3] No Effect [4] Small Positive Effect
[5] Large Positive effect

What are the reasons for your response.....

.....

How do you see the effects of the forest rules and regulations on your benefit from forest?

[1] The rules and regulations allow non CFA members to get benefits with fair payments

[2] I cannot afford to pay and get some benefits from the forest because the price is high

[3] I do not have any problems to get forest products as do the members because the rules are not followed

[4] I can get benefits through some CFA members

[5] I collect forest products illegally

[6] I do not agree with the rules

[7] Others specify

For the last 12 months have you been involved in any Forest related Income Generating Activity as the CFA members?

[1] Yes [2] No

If yes, what is the MOST important Income Generating Activities (IGAs) you have been involved in? [1] Beekeeping [2] Eco-tourism [3] Mushroom farming [4] Fish Farming [5] Sports and recreation [6] Farming/PELIS [7] Others.....

If you participate in more than one, list the IGAs according to the level of earnings starting with the highest.....
.....

What is the total average income you make annually from these IGA?

(a) 0-10,000 [B]10,001-25,000 [C] 25,000-50,000 [D] 50,000-100,000 [E] Over 100,000

In your own opinion is this income worth participating? () Yes () No

Explain.....
.....

Have you been trained on the IGAs (1) Yes (2) No

If YES, When (Year).....and by whom.....

Are the IGAs contributing to the forest conservation and livelihood improvement?

(1) Yes (2) No.

(a) If Yes. How?

(b) If No. Why?

Besides Forest related IGAs, which other IGAs do you participate in?.....

Did you receive any financial support while starting IGAs? [a] Yes [b] No

If YES, by who? [a] KFS [b] CFA[C] NGO/CBO [d] International Organization

Did you receive any Technical support while starting IGAs? [a] Yes [b] No

If YES, by who? [a] KFS [b] CFA[C] NGO/CBO [d] International Organization

Before you started participating in PFM, what was your MOST important source of livelihood?

[1] Farming [2] Business [3] Professional

[4] Others.....

In your own opinion, is your household in a better position economically (after CFA implementation)? () Yes () No

What were the main reasons for change?.....

.....
In your own opinion, is the forest condition better -off (after CFA implementation)? Yes No

What were the main reasons for change?.....

Besides IGA, which forest conservations activities do you engage in?

.....

Do you draw income from participating in forest conservation activities? (a) Yes (b) No

Do you participate in joint projects? Yes No

If YES do you share in the benefits of these shared projects Yes No

Are you satisfied with how this benefits are shared? Yes No

Explain your answer.....

Using a scale of 0 to 4, (Where 0 -NO benefit, 1-Little benefit, 2-somehow beneficial, 3-Beneficial, 4 – Very Beneficial) what has been the benefit of participating in forest management in areas indicated in the table below

	SCALE				
	0	1	2	3	4
Generate household income					
Create employment opportunities					
Enabling micro-economic activities					
Extract forest products					
Enjoyment of Forest services					
Sports and recreation					
Cultural and Spiritual values					
Appreciation of nature					
Forest protection and conservation					
Social interactions					
Improved financial success					

PARTICIPATION AND OUTCOMES

For how long have you been a member of the CFA?

- (A) 0-1 Year
- (B) 1-3 Years
- (C) 3-5 years
- (D) More than 5 years

Does the CFA has regular meetings? (a) Yes (b) No

If YES, how often are the meetings? (a) Weekly (b) Bi weekly (c) Monthly (d) Quarterly
(e) Twice a year(f) Yearly (g) irregularly

How often do you participate in these meetings (a) always (b) Sometimes (C) rarely (d) never?

If you attend CFA/user group meetings, how is your frequency of attendance in the last 12 months?

Codes: () increased () decreased () same

If your attendance decreased, what are the reasons?

- [1] I have other things to do
- [2] The meetings are not important to me
- [3] Even if I attend no one takes my idea
- [4] I am not usually informed the meeting date
- [5] Because of health problem
- [6] I am spending most of my time outside the village
- [7] Others, specify.....
.....
.....

If you attend in CFA/user group meetings, how do you participate?

- () Just to be present at meetings without saying anything
- () Being asked an opinion in specific matters without guarantees of influencing decisions
- () Expressing opinions, whether or not solicited, or taking initiatives of other sorts
- () Having voice and influence in the group’s decisions
- () Being asked to (or volunteering) undertake specific tasks
- () Other, specify:.....

.....
.....

Do you participate in making decisions relating to CFA activities? Yes No

If YES, how?

- I am informed of decisions made
- I am consulted in a meeting but decision made later
- I am fully involved in the process of decision making

Do you participate in electing leaders? Yes No

How do you hold leaders accountable?.....

Do you know how your user group revenues are used? Yes No

If YES, do you agree with how the revenue has been used? Yes No

Do you know how your CFA revenues are used? Yes NO

If YES, do you agree with how the revenue has been used? Yes No

Have you been trained in matters relating to PFM and forest conservation? Yes No

If YES, by which body? (a) KFS (b) NGO/CBO (c) Internal arrangement

(d) Others.....

Are you aware of any mechanism you can use as a member to hold your leaders to account? (a) Yes (b) No

If YES, explain.....

.....

How has participation affected access to the forest?

- No Change Decreased access More open access fully controlled access
- Improved access

Do you participate in enforcing forest regulations Yes No

If YES, How?

Do you participate in joint monitoring of the forest? Yes No

If YES, how often?

What was the condition of the forest before introduction of CFA?

- Well maintained, intact forest Degraded

If degraded in above, what were the reasons? Rank the three most important

1=most important, 2= second most important, 3= third most important

1. over use of forest products by local people
2. Clearing for agriculture
3. Logging by government
4. Pressure from livestock
5. Others (specify)

How do you categorize the forest condition after CFA? Improved Degraded No change

If Improved in QUIZ above, what are the indicators?

- More regeneration
- Healthy saplings and seedlings (not browsed)
- Reduction in number of cut stems
- Reduction in expansion of farm land in the forest
- Reduction in charcoal burning pits
- Others (specify).....

If the condition of the forest has improved after CFA, what do you think the reasons are?

- More protection by CFA member households
- Less use of forest products by members
- Less livestock number in the forest
- Strong follow up by CFA committee
- Strong follow up and support by KFS
- Strong support by local DONOR organization
- Others (specify).....

If the condition of the forest has degraded after CFA, what are the indicators?

- Less regeneration
- More browsed or trampled seedlings
- Increase in the number of cut stems
- Increase in number of charcoal burning pits
- Others (specify).....

THANK YOU

APPENDIX II: KEY INFORMANTS INTERVIEW SCHEDULE

KEY INFORMANT I: CFA LEADER

GENERAL INFORMATION

Name of CFA:.....Forest Station:.....

Name:.....

Sex: [1] Male [2] Female

Age: [1] (18-25) [2] (26-35) [3] (36-45) [4] (46-55) [5] (56 and above)

Education Level: [1] Primary [2] Secondary [3] Certificate/Diploma [4] Degree/Postgraduate

Primary Occupation [1] Farmer [2] Business [3] Professional [4] Casual

[5] Others.....

When was the CFA formed?

1. Legal Recognition

- Is it legally registered with register of societies?
- If yes when was it registered?
- What is the membership, age, gender and education levels of members?
- When was the management plan registered with KFS?
- When was the management agreement signed?

2. Political and Democratic factors

- For how long have you served in this position?
- Do you give accounts to members? () Yes () No
- If YES, how often?.....
- Do members have a right to question the reports? () Yes () No
- If Yes, How do they do this?
- Do you give account and reports to other higher authorities? () Yes () No
- If YES, which are these authorities?.....
- How often do you give the reports?
- What is the mechanism for bringing leaders into position?

3. Functionality Factors

- What is the mechanism for ensuring that members participate in CFA activities?
- What is the decision making mechanism in the CFA and in engagement with KFS?
- Have you been trained for the work you are doing? If Yes by which Body?

- How does KFS contribute to the successful performance of your roles?
- Which user groups are registered in the CFA and when were they registered?
- Which user rights does the CFA enjoy and which of these are being made use of by members?
- Which conservation activities does the CFA engage in? Are members' trained in these areas?
- How is the budgeting process done?
- How does the CFA finance its activities?
- What is the financial status of the CFA?
- What is the mechanism of financial accountability in the CFA?
- How do you engage with KFS?
- To what extent do you participate in decision making that involves co management of the forest?
- Which other stakeholders do you work with? And what are their functions/role in forest management?
- Have you entered in other agreements with other organizations? What are these agreements and what is the contribution to the objective of the CFA?
- What channels does CFA use to pass information to its members?
- What mechanisms does the CFA use to integrate ideas from the members? Who participates in CFA exchange activities? How do you ensure equal participation by members?
- How often does the CFA conduct its elections?

4. Effects

- Do you think CFA has changed the lives of FACs . If yes how?
- Do you think PFM has changed forest condition? How
- What are the IGA that the CFA is engaged in?
- What incentives are there to ensure effective functioning of the PFM?
- Does the CFA have any revenues?
- How does the CFA share its revenues to its members?

APPENDIX III: KEY INFORMANT II: USER GROUP LEADER

USER GROUP LEADER

Date

Name of Respondent/IntervieweeGender: (a)Male (b)Female
CFA.....User Group.....

Forest Station:.....

Position in the User Group:.....

- (a) How long has the group been in existence?
- (b) For how long have you been a leader?
- (c) What is the mechanism of bringing leader into position?
- (d) What is the mechanism of sharing benefits amongst members?
- (e) What is the membership, age and gender?
- (f) What is the mechanism of recruiting new members?
- (g) Before join CFA, how did /community interact with the forest?
- (h) What forest conservation activities are you engaging in jointly?
- (i) What IGAs activities are you engaging in jointly?
- (j) Have you been trained in other technology useful in your endeavors in the forest? If yes, explain
- (k) In your own ways how has PFM impacted the following?
 - Forest condition
 - Members livelihoods

APPENDIX IV: KEY INFORMANT IV: KFS OFFICIALS

Date

Name of Respondent/IntervieweeGender: (a)Male (b)Female

Position.....

Forest Station:.....

In your experience do you think PFM have helped addresses Forest Conservation and Community's Livelihoods improvement issues here? . Yes No Don't Know

If Yes, in what ways /what are those issues?

.....
.....

If No, what are the conservation and livelihoods issues it should address?.....

.....
.....

What are the other institutions participating in managing this forest?

What are the user groups registered in the CFA in the station?

How has the involvement influenced the management of forest? (Reports, maps etc.).....

.....

Is the CFA receiving any support from your office/government?.....

If Yes, in what ways.....

.....

In your own opinion what are the experiences and lesson learned on community participation on forest management in enhancing forest conservation and improving community's livelihood at the station?

.....
.....

THANK YOU

APPENDIX V: GSA FRAMEWORK AND SCORING MATRIX

SCORING SHEET

NAME:..... CFA:..... ...			
STEP	DECISION MAKING	CONNECTIVIT Y	KNOWLEDGE USE
Vision and objective setting			
Research and Assessment			
Strategy and development			
Implementation			
Monitoring evaluation and review			
TOTAL			
MEAN			

NOTES

.....
.....

SCORE	DESCRIPTION	REMARK
1	Dysfunctional	Unable to deliver the goals
2	Poorly functioning	Poor and likely to deliver on its goals
3	Somewhat functioning	Could fail or succeed
4	Functional	Good and not likely to fail to deliver on its goals
5	Highly functional	Excellent and cannot fail to deliver its goals