



Participatory forest management system in urban forests in Kenya- A case of Ngong Road Forest, Nairobi, Kenya

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Article published on December 30, 2019

Key words: Participatory forest management, Urban forests & community

Abstract

Participatory forest management is a system where community is involved in management of forest. Studies on participatory forest management have majorly focused on forests in rural areas. Since its adoption in Kenya in 2007, it has been scantily documented how the system has been implemented in the urban forests. This study aims to explore how the system has been implemented in the urban forests in regards to institutional arrangement, roles and activities of the community. The study was done in Ngong Road forest in Nairobi City County, Kenya. Collection of data was done through questionnaires; review of forest reports and interviews and analyzed using frequencies and cross tabulation. It was found out that the membership Ngong Road forest association was constituted by heterogeneous membership of individual members from the community, NGOs and corporate organization. It was further found out that the community members come from two economic extremes of affluence and less affluence resulting to diverse forest conservation and activities. It was further noted that forest association plays a key role in implementing forest conservation activities. The study recommends that state should put mechanism to fund forest association. It is further recommended that in planning for forest management, the uniqueness of the forest and the surrounding community should be take into consideration.

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Introduction

This involvement of local community in forest management is aimed at fostering sustainable forest management (Polansky, 2003). Although its' effective and meaningful adoption was first made in Asia Pacific particularly Philippines, China and Nepal, different countries have adopted and operationalized it in different ways (Mutimukuru-Maravanyika, 2010; Tesfaye *et al.*, 2017). In this system of forest governance there is collaboration between government forest agencies, forest adjacent community and other stakeholders (Petheram *et al.*, 2004).

Adoption of community involvement in forest governance in the Sub-Saharan African was premised on the argument that community involvement in forest management did not only have positive impact on forest resource but was also critical in alleviating poverty (Arnold, 2001). In Ethiopia for instance, introduction of PFM was founded on three complementary beliefs held by forest authorities and donors. These beliefs were failure of centralized forest management system, effectivity of community participation and the role of forest as source of livelihood to the community (Temesgen *et al.*, 2012). These are among the reasons that lead to adoption of Community forestry in most African countries including but not limited to Tanzania, Burkina Faso and Kenya.

Legal framework that led to community involvement in forest management in Kenya came with the enactment of Forest Act 2005 which has since then been revised to Forest Conservation and Management Act, 2016. The Act provides for Participatory forest management (PFM) which is modeled on provision of incentives to local communities in terms of forest use rights who in return take collective responsibilities in forest management. Operationalization of participatory forest management requires that the forest adjacent community forms forest association which enters into agreement with Kenya forest service for the purposes of forest management. The forest associations enters and agreement with the Kenya forest service and signs a management agreement that stipulates which user rights they are given as they

engage in forest conservation and management (Government of Kenya, 2016).

Studies on community involvement in forest management in Kenya and other developing countries have provide useful insights on this forest management system (Mutune *et al.*, 2016, Couli-Lingani, 2016, Chomba *et al.*, 2015 and Ongugo *et al.*, 2008). It is however observed that these studies have hugely focused on forests in rural areas and rural livelihoods. Consequently, it has been scantily documented how the system has been implemented in urban forests and how urban social, economic and geolocation factors have shaped participatory forest management system.

Urban areas are characterized by socio-economic and socio-demographic features that are different from what is in rural areas. These factors are of potential influence to how community is involved community based natural resource management. As a results, findings on the institutional establishment, practices and outcomes of participatory forest management in rural areas may not be the same as the context in urban areas. With the rapid urbanization in developing nations, there is need to establish the influence of urban dynamics with the aim of ensuring that the resource management system is successful. This study was aimed at examining how participatory forest management system has been implemented in urban forest in Kenya with a view of establishing the influence of urban set up on the system of forest governance.

Materials and methods

Study Area

The study was conducted in Ngong Road forest in Nairobi County. This study site was purposefully selected because the site is one of the few indigenous urban forests in Kenya gazette in 1932 and located within the Kenyan Capital City-Nairobi. It is the largest forest blocks within the Kenyan Capital, located in Dagoreti and Lang'ata Sub-counties, 6Km to the west of Nairobi Central Business District. The forest lies at an altitude of 1670 meters above sea level with latitude of 36°50' and longitude 11°17' South (Moss, 1988). It is rich with biodiversity.

Sampling and Sample Size

The research targeted members of the community forest association (CFA) members and PFM key informants. In order to identify these participants, two sets of pre-visit were conducted. From the pre-visit, a list of CFA members was obtained from CFA leaders where it was established that Ngong Road Forest Association (NRFA) had 212 registered members. From the list obtained, a sample frame of active CFA members was constituted with the help of CFA leaders. It was found out that out of 212 registered members, Ngong road forest association had 165 active members. Only members active in day to day activities of the CFAs were selected for the purpose of the study. The active members was grouped according to gender-male and female and randomly selected for the purposes of study leading to a total study population of 83 members.

Data Collection and Analysis

Secondary data was collected from review of gray literature including forest management plans and management agreements signed between CFAs and KFS, constitutions of CFAs and minutes and reports. Primary data was collected through administration of questionnaires to CFA members and interviewing key informants when the feedback was recorded on an interview schedule prepared by the researcher. Qualitative data was summarized according to the respective subjects while quantitative data was coded in SPSS where frequencies and percentages were calculated.

Results and discussions

Participatory forest management Institutional Arrangement

The study found out that community members around Ngong Road formed an association in 2008 and applied for official registration in December 2008. It was formally registered under the Societies Act of Kenya as Ngong Road forest association (NRFA). The association developed its constitution that was also a mandatory requirement for registration during this time. The objectives of the formation of the NRFA included; to conserve the forest, to protect the forest's

resources and to raise the socio-economic standards of the community members through sustainable utilization of the forest resources.

Prior to registration of the association, the Ngong Road Forest had a history of community participation in forest management even before the enactment of the Forest Act, 2005. The Ngong Road forest experienced unprecedented deforestation in prompting the establishment of Ngong Road Forest Sanctuary in 1990. The forest sanctuary involved the self-help groups from the surrounding community in forest conservation activities where they were employed as laborers. The establishment of forest sanctuary and its subsequent employment of the community in forest activities is very unique compared to how the practice has been reported in rural forest. Proximity to the urban area exposed urban forest to technologies and practices that arise from the organizations within the city.

Effective establishment of community forestry should not only be driven by rules and regulations of the state but should equally be guided by the aspirations of the community. In the uniqueness that exists in urban and rural forest set ups particularly in the discourses surrounding the implementation of PFM, there is need in which the eminent uniqueness of various communities are reflected in how the PFM is implemented. A study done by Tesfaye *et al.*, 2017, notes the organs that are involved in PFM should be clear on power balance through ensuring that the established legal framework is congruent with not only the natural resource in question but also the socio-economic interactions and norms with an aim of enabling autonomy of user groups in making and implementing rules. In light of this, there is a critical need to consider the difference in socio-economic factors of FACs in rural and urban areas and develop the rules and regulations in a way that responds to their uniqueness.

Membership and Management of Forest association

The study found out that the membership of community forest association in Ngong Road forest at

the time of study heterogeneous constituting of individuals living around the forest as well as corporate organizations.

Community members of the association were drawn from various user groups and self-help groups that

had an interest in the management of the forest even before the enactment of the Forests Act, 2005. There were five such groups. In addition, there were registered non-governmental organizations (NGOs) and corporations. Each of the members had a specific interest in the forest as shown in the table 1 below:

Table 1. Ngong Road Forest Association User Groups.

Category	Name	Location	Major Activities
Community Group	Gatwekera Self Help Group	Kibera	Firewood
	Ngando Group	Ngando	Bee Keeping
	Nuclear Handcraft Group	Rirura	Tree Nursery
	Mutuini Group	Kibera	PELIS
Registered NGO	Mazingira Self Help Group	Dagoretti	Tree Nursery
	Msitu Raha	Ngong Karen	Recreation
	Miotoni Wetlands	Karen	Lobby
	Ngong Rd Sanctuary	Ngong Rd	Conservation
Corporations	Wildlife Clubs of Kenya	Langata Rd	Environmental Education
	Bomas of Kenya	Bomas	Eco-tourism/hospitality
	Ngong Jockey Club	Ngong Road	Recreation
	Kenya Scouts Association	Kibera	

From the findings above, it is observed that Ngong Road forest association had a diverse composition of membership. Besides the individual households of community surrounding the forest, it was observed that the CFA has membership from corporate bodies and registered non-governmental organizations (NGOs). This composition is heterogeneous in nature. The finding on heterogeneity of membership in Ngong Road forest is one of the other key unique feature of urban forests. In other studies conducted in rural forests, it has been reported that membership of community forest association is constituted by community members who are organized in CBOs.

Unlike forests in the rural areas, CFAs in urban areas are accessible to the wider population of the individuals and organizations that are based in Nairobi city. It can also be argued that the leadership in urban CFA has higher capacity to attract members beyond the normal households that live adjacent to the forest. One of the evident explanation was the extent to which Ngong Road forest was accessed by international researchers and academicians.

The composition of membership of community forest association influences how the CFAs and leadership is constituted. In the PFM guidelines of 2016, it is provided for in the formation of CFAs, one of the key

steps is to facilitate for a transparent and fair elections of the Forest Association Committee line with the CFA constitution. According to the guidelines, there should be creation awareness among members on the roles of each incoming committee member and minimum qualifications for each position. In the study found out that in the constitution of NRFA executive committee, the local community elected one representatives from among themselves to be member of the CFA committee. The corporate bodies and NGOs who were members of NRFA seconded representatives to the committee. It was at this level that the members elected the office bearers while the rest remain as members of the committee. This finding is very different from the normal laid down procedure where community members hold grass root elections at the CBO level before they elect leaders at the CFA level.

Membership heterogeneity in community based natural resource management influences the performance capacity of local institutions. It was observed by Poteete and Ostrom 2004, that heterogeneity and homogeneity in community involvement which come in different dimensions including political economical interest, culture have huge impacts on outcomes of the process of participation. In this study it was suggested that

heterogeneity enhances institutional performance as compared to homogeneity.

Livelihood and Economic activities

One of the goal of participatory forest management is to enhance the livelihood of the community participating in forest management. This study sought to establish the primary occupation of members engaged in CFA and the findings are as shown in the table 2 below.

Table 2. Primary occupation of members.

CFA	Occupation				
	Farming	Business	Professional	Casual	Other
NRFA	10.96%	38.43%	14.46%	28.92%	7.23%

Primary occupation and livelihood is a key factor in participation in forest management. The study realized that there is diversity in the primary occupation of members participating in management of Ngong Road forest.

Traditionally, it has been held that community participation in forest management is aimed at realizing agricultural related benefits. In this finding, it is realized that community members in urban forest have diverse livelihood activities within the forest. In consideration that livelihood determines the motivation for participation, the nature of livelihood in the sites directly determines the diversity of user rights of the CFA. It is therefore important that in the allocation of user rights, the state should take into

consideration the uniqueness of the community. This should also be followed through in the training, investment and enablement of the community.

Community members' participation in decision making

Participative decision making is one of the fundamental element participatory forest management. Meeting is one of the tools used in public participation and engagement. By establishment of CFA as a system of participatory governance, it is required that the entity will hold both legally required meeting like the Annual General Meeting (AGM) as well as other operational meetings to transact the business of the CFA. This study found out from key informants' interview that members of NRFA had regular meetings where members met twice in a month. The researcher had an opportunity to be in one of the meetings to make observations of the way the meetings were conducted. Interestingly, this meeting was attended by the members of the local community and not the corporate bodies and NGOs which are part of NRFA. The meeting majorly focused on the activities of the local community both conservation and income generating.

It is not enough to attend meeting but rather to ensure meaningful engagement and participation in the meetings. This study sought to find out the perception of members on their level of engagement and contribution during the CFA meetings and the findings are as shown in the table 3.

Table 3. Participation of NRFA and KICOFA Members in Meetings.

CFA	Present in meeting and not making contribution	Opinion sought without guarantee of influencing decisions	Expressing opinions & taking initiatives	Having voice to influence decisions	Volunteering to undertake tasks	Others
NRFA	6.02%	34.94%	39.98%	9.06%	10.00%	0.00%

From the findings, it can be deduced that majority of the community members 39.98% of NRFA while in the meetings are able to express their opinion ions and take initiatives. It can be argued that this is attributable to high level of engagement of NRFA members in more and well attended meetings The findings of this study agrees with the study done by Fiorino (1990) which concluded that very few meetings of public

participation would embody ideal view and nature of participation which constitutes partnership and shared responsibility, benefits and decision making.

Decentralization of decision making is one of the key tools applied in participatory governance. In establishing the nature of decision making in this study, it was found out that majority of members in of

Ngong Road forest 98.8% indicated that they in some way participate in decision making. It was however important for the study to establish at which level of decision making are the members involved. In this regard, the study went further to establish the level at which the members were involved in decision making. By categorising decision making levels to information, consultation and involvement, the findings of decision making levels in NRFA, it was found out that majority of the members 41.2% were involved at consultative level of decision making, 31.7% were involved at information level while 26.8% were involved at involvement level of decision making.

It is observed that despite the fact that a big majority of members in NRFA agree that they participate in decision making, the level of involvement is in different. Majority of members of NRFA indicated that they are consulted but decisions made later and this implies that they are involved at the consultative level of decision making.

Several studies that have considered the decision making levels of communities in PFM have reported that community members are not involved. This study reports that in as much as big majority of members feel that they are involved in decision making, the level of involvement is insignificant and thus calls for a deliberate need to enhance the decision making levels of communities in forest management.

Activities and Roles of the Ngong Road CFA

The study found out that the forest adjacent community in Ngong Road forest that engaged in PFM came from different socio economic extremes of affluent and less affluent communities. In accordance with the Forests Act, 2005, CFAs have been mandated to carry out various activities and roles within forests (GoK, 2016). These are geared towards improving the forest status while at the same time enhancing the members' livelihoods. a) Activities. In Ngong Road Forest, the following activities were being undertaken by the CFA; tree nursery establishment, tree planting, beekeeping, fuel wood collection and harvesting of plant parts for medicinal purposes.

As a result of the different socioeconomic status in NRFA, it was observed that there was a variety of activities and different motivations for participation in PFM. The study observed that most of the members from less affluent communities relied primarily on the forest to derive their livelihood. The study realized that majority of these members at 80% had forest activities as their primary source of livelihoods while a minority of 20% mentioned an alternative source of livelihood. These livelihood activities include agricultural activities and business related IGA and forest conservation activities. On the other hand, members from affluent regions of the forest engaged the forest activities either as hobby, leisure, conservation purposes or to earn extra income. Most of these individuals were registered for a variety of use rights including sports, leisure, ecotourism, education and other forest conservation activities.

From the findings, it can be generally deduced that PFM plays a key role in community's livelihood in urban forests in Kenya. This finding agrees with the findings of (Bidii and Ngugi, 2014) that suggested that for developing countries, PFM is critically entwined in community livelihoods whereby as an entity, it is important factor in local economic development, poverty reduction and market based conservation initiatives. It is also in agreement with the findings by (Phiri, 2009) who observed that more than 95% of FAC in Ethiopia depend on the forest for their livelihoods either directly or indirectly. It is thus suggested that both urban forests in Kenya play a key role in community's livelihoods.

The study further sought to find out whether the forest adjacent community Ngong' Road forest were in any way benefitting from the forest in form of services in various ways and deriving different values. In regard to forest services, the study found out that majority of the members of Ngong road forest association were involved in forest services that were of economic value (37.1%), recreational 21.3%, Religious 27.2% and social cultural value 14.5%.

Implementation of Forest Conservation Initiatives

Participatory Forest Management is based on a forest management plan that is prepared with the involvement of the community and interested stakeholders called Participatory Forest Management Plan (PFMP). Objectives to be addressed by each plan depend on the issues that are identified by the communities, stakeholders and Kenya Forest Service. The objectives vary depending on the forest reserve, communities, stakeholders and Kenya Forest Service overall goal. Its performance is this based on implementable activities, which are usually based on the forest uses.

According to the objectives that informed the formation of Ngong road forest association,, the study found out that one of the key objective was to not only to contribute to poverty reduction, create employment, improve livelihoods through sustainable use but also to contribute to the conservation and management of forests and trees. While conducting these activities, it was realized that Ngong Road Forest Association had partners working with them in conduction conservation activities. It was found out that members of Ngong Road Forest association conducted regular clean-up of the forests along Ngong Road. During these clean-up activities they were joined by other partners among them Kenya Wildlife services, neighboring private and public schools, Nairobi City County Officials, University Students and Nairobi Business Community.

The researcher sought to find out how effectively the association implemented its forest conservation initiatives as enshrined in the management plan. The researcher sought to evaluate the level of implementation of the laid down forest management actions towards realizing forest conservation and sustainable use. This was done using a scale of 0-5 (where 0=nothing done, 1=documentation done, 2=documentation and contacts with partners done, 3=ground implementation screening done, 4=piloting done and 5=fully implemented) and the findings are as shown in Table 4.

Table 4. Level of implementation of Forest Conservation activities.

Item	Implementa tion Level (Mean)
	NRFA
Joint study on forest biodiversity (flora and fauna)	5
Mapping of threatened forest species	4
Update forest database regularly from information from relevant research institutions	4
Capacity build community on energy conservation	5
Encourage the use of alternative renewable sources of energy, e.g. solar, biogas,	4
Train the CFA and user groups in sustainable forest management	5
Establish tree nursery and participate in silvi-cultural activities	5
Engage in joint monitoring and evaluation	5
Total	37
Mean	4.63

The study found out that funding is a prerequisite to the PFM process that is instituted in each forest reserve to ensure the PFM process is undertaken. The preliminary activities to PFM require financial resources. These activities include identifying the community and verifying resources, assessing forest area and the community, preparing draft forest management plan, facilitating the formation of a forest association, negotiating, drafting and signing a forest management agreement and to declare the area a PFM area. It was realized that the process increases community awareness on the forest resource, change in attitude on forest ownership and change in capacity for fund raising. It was ultimately noted that funding of forest association influences the forest management plan and the activities agreed on the developed Forest Management Agreement. The plan is highly influenced by the intensity of information collection and level of sensitization of stakeholders which also depend on the level of funding. It is thus concluded that effective participatory forest management process requires substantial amount of financial resources.

Conclusions and recommendation

Participatory Forest Management has taken root in Kenya as a forest management intervention and has

equally been adopted and implemented in urban forests. It has highly reduced cost of forest management and generate benefits to Community Forest Associations. It has been established that participatory forest management is highly influenced by the forest type. The social, economic and geo-locational factors characterized in urban rural diversity influences the implementation of participatory forest management. This is as exhibited in diversity of membership, institutional set up, roles and activities and capacity of development and implementation of forest management plans. In this regard, it is necessary to do an assessment of the resources in each particular forest before PFM is instituted. Objectives of any PFM should be specific to the particular forest but not generalized. Furthermore, stakeholder analysis should be done to identify the relevant stakeholders and their community diversity as this will influence the various uses that need to be addressed.

Forests are different in types of type and the surrounding community. It is thus imperative that each forest reserve demands application of laws and policies depending on the resources therein. This process should be driven by accurate data and information in order to be able to address in each forest need in isolation.

Implementation of forest management plans require resourcing. In this regard, Kenya Forest Service and every forest association should be ready to do the necessary fundraising to engage effectively in forest management.

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