



Review article

A transforming traditional community based forest management: the case of Loita community forest, Kenya

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HIGHLIGHTS

- This paper provides information on *Entim e Naimina Enkiyio* which means “the forest of the lost child” or Loita Community Forest.
- Further the traditional management system is facing challenges of modernity leading to start of forest degradation.
- Policy support is required to enhance the managements' contribution to community livelihoods and forest conservation.

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ABSTRACT

Governments are pushing for decentralization of forestry governance, but in Loita community forest, the traditional community management organization is inviting government and other stakeholders to participate in the forests' management. This study was undertaken through questionnaires, Focus Group Discussion, Key Informant Interviews, and participant observation. Loita community forest is a community forest supposed to be managed by the County Government on behalf of the community since the community is not registered as a legal entity to manage and own the forest as required by the Land Act. The community was practically managing the forest under Traditional Community Based Forest Management. The community leadership was faltering, resulting in forest degradation. This challenge was being mitigated by inviting (pluralism) other stakeholders to enhance forest management capacity. There was fear that the national government's inclusion in Loita forest management may result in inequitable sharing of power and authority and further weaken the community governance systems. This emerging governance regime lacks; a strategy for strengthening the capacity of the traditional community organization, legal framework, and some of the partners joining have extensive network and power with potential for disfranchising the traditional organization through introducing and or amending the traditional regulations to satisfy their interests. There is a need to develop partnership guidelines to guide the pluralism scenario emerging to support the sustainable management of Loita forest and ensure community traditional organization's transformation does not weaken or replace the community organization.

1. Introduction

The government mainly administers conservation areas in developing nations (Guthiga, 2008) before this management system was linked to social controls or African Customary law (DeGeorges and Reilly, 2009). Forestry management in Kenya has been through a centralist command and control leading to the gazettement of government forests for over a century until the late 1990s (Matiru, 1999; Mbuvi and Musyoki, 2013; Government of Kenya - GoK, 2016a) with several forests under Traditional Community Based Forest Management

(TCBFM). In the paper, TCBFM refers to a management regime where the whole community, through indigenous governance systems, fully manages and owns the resource based on representative authority. The traditional leader is the custodian of ownership and management authority (Mbuvi et al., 2015). Most Kenyan forests are under pressure because of deforestation, forest fragmentation, forest degradation, over-exploitation of species, and exotic species' introduction (Peltorine, 2004; GoK, 2015; GoK, 2016a). Globally forest degradation and deforestation resulted from decades of overexploitation from industrial logging (Charnley and Poe, 2007).

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It was believed that this trend would be reversed (Agrawal and Ribot, 1999; Agrawal, 2001; Bazaara, 2003; GoK, 2016a) by the involvement of communities and other stakeholders in forest management through decentralization. Waves of natural resources management decentralization experiments have been implemented in Africa, generating positive and negative impacts since the 1990s (Oyono, 2005). Decentralization of forest governance refers to the restructuring or reorganization of authority so that there is a system of co-responsibility between institutions of government at the central, regional and local levels according to the principle of subsidiarity, thus increasing the overall quality and effectiveness of the system of governance while expanding the authority and capacities of sub-national levels (UNDP, 1999).

In Kenya, there was increasing pressure on the government to decentralize forest governance in the 1980s to mitigate against forest degradation by involving the local communities who are beneficiaries of the products and services to ensure they have the power to manage “their” resources (Ministry of Environment and Natural Resources - MENR, 1994; Wass, 1995; Ribot, 2002; KFS, 2015a; GoK, 2016a; GoK, 2016b). As envisaged in the Kenya Forestry Master Plan (MENR, 1994), decentralization in Kenya had the forestry sector undergo important transitions in administrations, roles, functions, and orientation. The key outcomes being the promulgation of The Forests Act (2005) (GoK, 2005) repealed to The Forest Conservation and Management (FCM) Act 2016 to align with The Kenya 2010 constitution (GoK, 2010a) and provided for partnering with Non-Government Organizations (NGOs), Civil Society Organizations (CSO) and communities in forestry management (KFS, 2009; KFS, 2015a; KFS, 2015b; GoK, 2016c).

When the colonial administration centralized forest management in Kenya, it left out forests with well-established traditional management systems under community ownership and management. These forests were formally called trust land forests (GoK, 2016b; GoK, 2016c). Loita Community Forest (LCF) was one of these forests. Forest decentralization in gazetted forests that started in 1997 influenced forests managed under TCBFM like LCF. This influence is leading to Loita community leadership inviting other stakeholders, including the state, to participate in its management. In gazetted forests, the state is inviting communities to participate in forest management. Gazetted and community-managed forests are the two major forest management regimes in the country. They would remain independent as the country may never revert to community-based forest management, neither have all forests under government-only management. Each regime will still

develop partnerships defined by each regime's governance principles (Figure 1).

Loita Community Forest has been managed under TCBFM, which is a form of governance where the community was; in charge and assumed ownership traditionally, exercising full and exclusive management, making all decisions, and also have complete control of the expanded bundle of rights (access, withdrawal, management, exclusion, duration (time-bound) and extinguishability, RRI, 2012) and the right to alienate (Lawrence and Watkins, 2012). The TCBFM in LCF is transforming into a management regime that incorporates other stakeholders, including the county and national government. This regime change cannot be referred to as decentralization since the community cannot decentralize to the government. The forest is a common pool resource (Hardin, 1968) that is reasonably well managed with neither private nor state intervention (Blewett, 1995). The forest is not open access since it is controlled by the Laibon (community traditional governing system led by the Laibon). Still, the tragedy of the commons scene in LCF started being glaringly noticeable by 1999. The Oloibon institution was beset by weak management ability that was leading to forest degradation. This situation was being mitigated through; institutional transformation, socio-economic development activities like churches, schools, markets, incorporation of new social and political groups like locational forest committees. Further, expansion of the membership of the Oloibon institution through local Community-Based Organizations (CBOs) like Loita Community Forest Association (CFA), Olorte Water Users Association (WRUA), and Local NGOs like Ilkerin-Loita Integral Development project and Walking with the Maasai were supporting forest conservation. The national government has also joined, providing security, forest protection, and conflict management on land and forest resources.

Communities started appreciating the need for government and other stakeholders' participation by 2007. This interest has been hastened by the national euphoria on decentralization witnessed by the passing of the Constitution 2010 (GoK, 2010a, b), with communities clamouring to take up what the government was doing. This was pushing the LCF community that has historically managed its forest to believe that transforming their management regime to include more stakeholders, especially the government, through pluralism. This would lead to sharing power and control over resources with non-local actors calling for a process to ensure equity and fairness. Government participation in the governance of LCF may result in the absolute extinguishment of the Loita

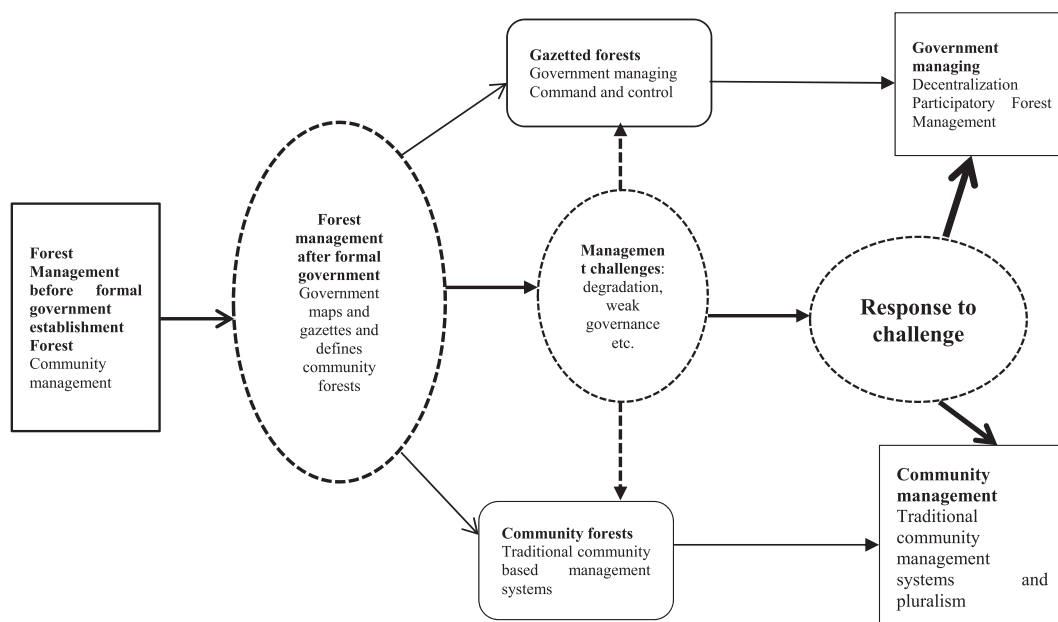


Figure 1. Conceptual evolution of forest management developmental in Kenya.

communities' existing expanded bundle of rights (German et al., 2014) enjoyed since time immemorial.

Kenya has decentralized forest management mainly through Participatory Forest Management (PFM), where communities enter into a formal agreement to manage defined forest areas has been done in gazetted forests under national government management. Pluralism may be adaptable in LCF like many community forests in the country where the traditional institution expands to include non-traditional organizations (Garcia, 2015) as a means to mitigate the traditional institutions weakening management capacity through partnering with organizations that are distinct and actively autonomous and independent, but often interdependent, with legitimate claims and different positions on critical substantive issues (Anderson et al., 1998; Anderson, 2000). Additionally, the community shall require to be registered as per the Community land Act, 2016 (GoK, 2016b) to have legal status to own the forest and legally enter into management agreements without fear of losing their rights once they allow partnerships in LCF management.

This study was undertaken to; understand how TCBFM is implemented, determine how partnerships will affect the existing management approach and community livelihoods, and propose a TCBFM framework on how forests under TCBFM would be managed under a scenario of a multi-stakeholder partnership approach. The study was guided by six questions including; (i) why was forest management decentralization started in Kenya, (ii) does the national decentralization process being implemented in gazetted forests apply to LCF, (iii) why would Loitans allow other stakeholders to join in the management of LCF, (iv) shall the

emerging forest management scenario in LCF assure the community of continued access of the same bundle of rights; lead to improved community livelihoods and better forest conservation, and (v) what would be an appropriate forest governance regime for LCF.

2. Materials and methods

2.1. Description of the study site

Loita Community Forest is also called *Entim e Naimina Enkiyo* which means “the forest of the lost child.” The forest is estimated to cover 33,000 ha and has communities living inside and adjacent to it (Mbuvi et al., 2015). It is located in the Loita sub-county in Narok County (Figure 2). The elevation of the Loita area ranges from 2,000 m to 2,600 m above sea level with a mean annual temperature of 17 °C and a rainfall range of 600–1,200 mm (Riamit, 2010; Obare, 2003). The geographical position of Loita is within 10 30IS, along the Kenyan Tanzanian Border and 350 30IE to 360 E. The Loita Maasai (the Iloita or Loitans) were 22,873 people (GoK, 2010b) and lead a more traditional lifestyle than other Maasai groups in Kenya. Loitans have remained isolated (Karbolo, 2000; Kaunga and Karbolo, 2006; Saitabau, 2008; Riamit, 2010) and always believed that they own the forest (Schlager and Ostrom, 1992) and have since time immemorial, responsibly managed the forest as a whole and religiously conserved and preserved it through their traditions, culture and unwritten customary laws (Karanja et al., 2002; Riamit, 2010) with hardly any County or national government support.

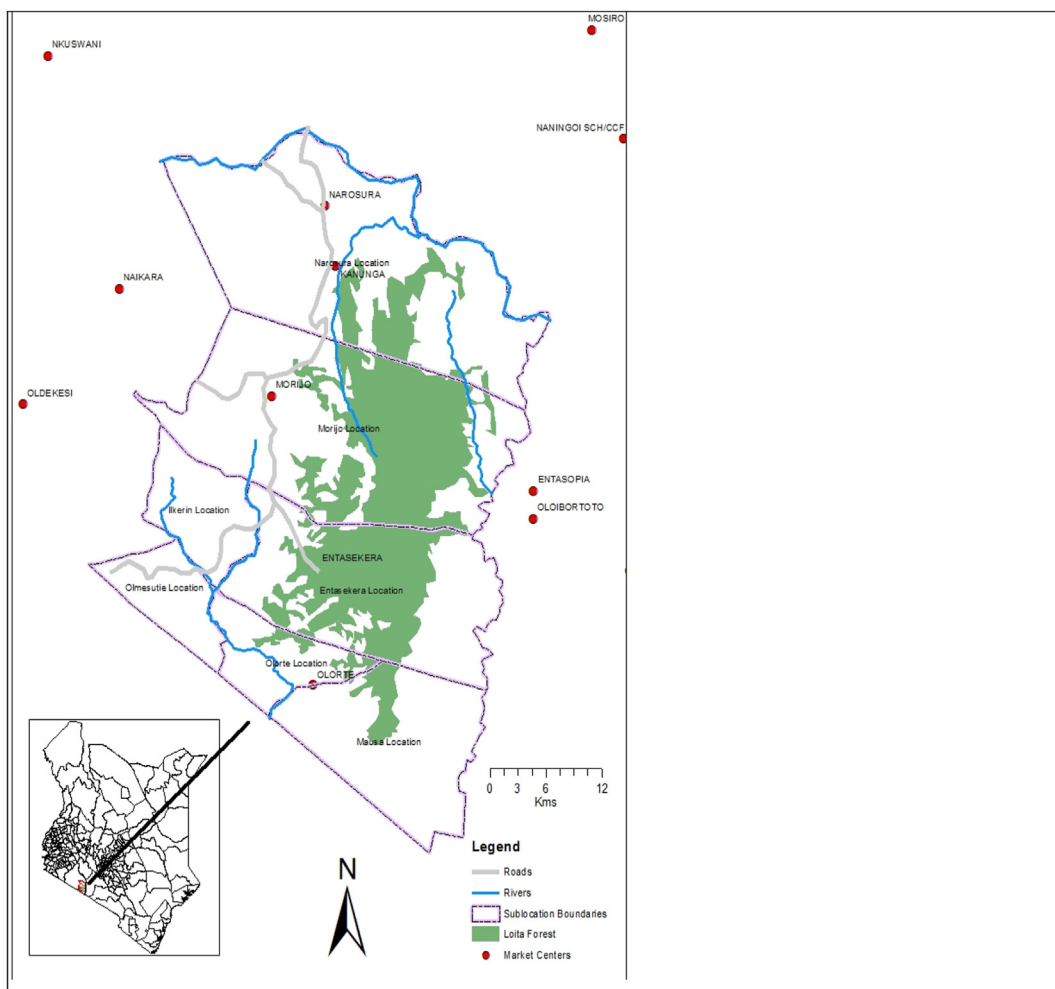


Figure 2. Loita forest in Kenya.

2.2. Sampling design

The study used a descriptive research design to meet all the research objectives. Secondary data was collected by reviewing legislative documents, forestry-related publications, and project reports to provide an overview of LCF, the communities' socio-economic status, and how the forest has been managed compared to other forests under similar management regimes in other countries. The sample size was determined. Sample size of study was calculated using the formula Z^2Pq/d^2 (Mugenda and Mugenda 2003).

$$n = \frac{z^2 p(1-p)}{d^2}$$

where:

n -: the desired sample size.

Z -: was the corresponding standard score with the probability of error at 0.05 and a confidence level of 95%, which is 1.96

p -: was the occurrence level of the phenomenon under study and is equal to 0.5 where the occurrence level is not known

d -: is the selected margin of error of the study corresponding with 95% confidence level in this case 0.05.

Substituting for the values:

$$n = \frac{1.96^2 \times 0.5(1-0.5)}{0.05^2}$$

$$n = \frac{1.96^2 \times (0.5 \times 0.5)}{0.05^2}$$

$$n = 384$$

The households were randomly selected from a list of Manyattas (which refers to a group of households living mostly in huts within a common fence but not necessarily related, mainly observed among the Maasai community) in each village provided by the village heads. One Manyatta was randomly selected in each village, and a questionnaire was administered to thirty household heads within each of the selected Manyattas. The manyattas were located in Entasikira, Olorte, Ilkerin, Empupurtia, Ilmaral, and Nkapon zones in the Loita study site. The forest was stratified into six zones based on the discussion held with key informants to address the forest size and variability to represent the forest's social, ecological, and economic situation and the community settlements inside and outside the forest. Stratification also ensured a fair representation and captured a good perception of the forest conservation status and community livelihood.

Snowballing (Mugenda and Mugenda, 1999) was also done whereby a policy-maker (who could be a community leader, a government and NGO officer, or other organization staff) would propose another officer or community who was considered experienced in answering policy questions. Key Informant Interview respondents were selected through purposive sampling (Mugenda and Mugenda, 1999) from the community, relevant government. Additionally, Seven Focus Group Discussion (FGD) were held before and after administering the questionnaires. The FGD meeting were attended by 27 participants representing households selected purposively with the help of KIs and their characteristics defined to the proposal, size, composition, and interview procedures as defined by Freitas et al. (1998); Folch-Lyon & Trost (1981) and Boateng (2012). The FGD participating members representation included; 12 youth, 6 women and 6 men and 3 elders.

2.3. Data collection

Household questionnaires were administered to the sample population of 180 households in the Loita forest, but 122 questionnaires were correctly filled and used for data analysis. Thirty-six policy-makers were interviewed. Initially, five KIs were held spread evenly across the study

site at the start of the survey. An additional five KIs were held guided by a checklist at the end of the study to deepen understanding of the rapidly changing governance system. The checklist guided the discussions through trend analysis of forest management situation before the community started involving other stakeholders in forest management and the time other stakeholders started partnering to determine the social and forest management changes that have occurred over that time. The "fairness of the deal" the households were getting from the forest, and forest managers were assessed. The KIs were supported by participant observation driven by "logic of discovery" (Jorgensen, 1989) to determine how the communities relate to the forest. The researcher made observations and made records written and photos. The observations were done in the forest, and changes were discussed with herders and farmers to understand forest change.

The interviewees, Key Informants and FGD participants consent was sought before participation that the information will be treated with utmost confidence and they shall remain anonymous.

2.4. Data analysis

The socio-economic data were analyzed using descriptive and non-parametric statistics. Specifically, in descriptive statistics, frequencies and percentages were used to explore the data pattern in response to perceived decentralization management scenarios. All socio-economic data was entered in Ms-excel and analyzed using descriptive statistics. The reasons were also broadly categorized for ease of discussion.

3. Results and discussion

3.1. Characterization of respondents

The survey indicated that the Loitans were the predominant tribe representing 97.5% out of 122 respondents with the negligible presence of other communities, including Kalenjin, Luhya, and Somali, represented by 0.8% each. Migrant communities are an indication that other communities are starting to migrate to the area. Focus Group Discussion indicated that the migrant communities are shop-keepers, employees like medical personnel, teachers, and farmers. The settling of migrant communities may signal the start of their influence on how the community relates and uses the forest. The main occupation in Loita was agriculture and livestock (Figure 3). Though carpentry was not indicated, it was noticed in the Oloibon homestead. Entasikira had a carpentry shop, and the Ilkerin project had started a vocational training center targeting carpentry, among other skills, in 2016 mentioned during FGD. These initiatives shall have a transformation in how the community accesses and use the forest.

Focus Group Discussion indicated that families living in the forest have households outside the forest, and the mature household members are establishing their households mostly in the forest. The community has a very high illiterate level. Out of the 122 household respondents, 61.5% were illiterate, 22.1% had attained the primary level of education, 13.1% gained secondary, 3.3% having earned diploma, and none having a university education. Low skills may lead to the community relying more on the forest leading to high degradation.

3.2. Reasons for decentralizing forest governance in Kenya and inviting stakeholders in Loita forest

While at the national level, policy-makers indicated that decentralizing was started because of the deterioration of forest conditions and inadequate resources, leading to reduced forest resources (23%) and failure of command and control. In Loita, the major reasons for Oloibon inviting other stakeholders to participate in the management of LCF were to introduce planning and invite government and other stakeholders to enhance the community governance system. Few of the national factors supporting decentralization in the forest sector applied to LCF (Table 1)

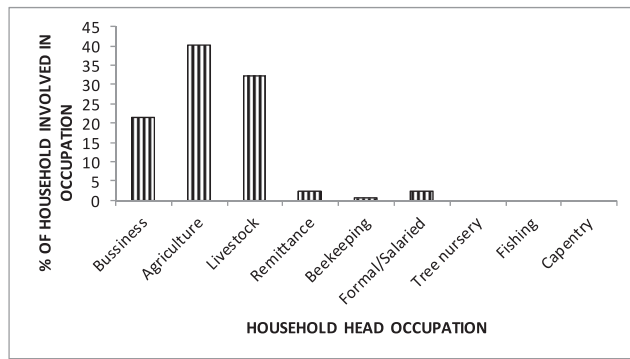


Figure 3. Main household head occupation.

as the impact of resource degradation was hardly noticeable. The broad reasons for decentralization at the national level were similar to those enumerated by Larson and Soto (2008).

The policy-makers indicated that the implementation of The Forest Act (2005) (reviewed to FCM Act, 2016), among others, was a bold step that signaled the start of decentralization in the forestry sector in Kenya (Figure 4). The indicators do not apply to LCF as the forest is managed as a community forest through the traditional governance system. The only similarity in Loita is a conceptualization of PFM, which was an initiative of three elites from the community who registered a CFA to conform to national trends and law.

3.3. Indicators of decentralization in the forest sector in Kenya and Loita Forest

The policy-makers were not very clear on indicators (Table 2) of decentralization but were aware that decentralization was taking place in Kenya's forest sector. Further, policy-makers indicated that decentralization was introduced to improve forest management. These scenarios enumerated by policy-makers in Table 2 were hardly applicable to LCF since the forest did not face the same challenges. There is a need to create adequate awareness creation on the decentralization process supported by adequate capacity building.

Further, the scenario in LCF does not conform to what Bazaara (2003) indicated that the devolution of decision making power over natural resources to publicly accountable local authorities is frequently

advocated as a means of achieving social development and enhancing environmental management. In LCF, the Oloibon invited non-local stakeholders who are not accountable to the communities, as indicated during FGD. The question was, why would communities go for an arrangement that reduces their control over the resource? More so realizing that policy and regulations to manage forests under this scenario have not been formulated and local people formally have no power to make rules on forest management as was noted by Teye (2011) a situation similar to Kenya. Once the government joins the partnership what were rights to the local people may become benefits. The community may lose economic benefits, including rent-seeking opportunities, from the control they presently exercise over natural resources and the powers that define and support their political and administrative roles as was noted by Ribot (2002). These challenges were major concerns.

3.4. Shall the emerging governance regime in LCF assure the community of continued access to the same bundle of rights?

The forest had been a source of livelihood for the community under TCFBM, and a transformed system and organization may present a challenging situation to the community and disrupt their unlimited access to forest-based livelihood opportunities and result in forest degradation.

(a) The role of community in the management of Loita Community Forest

In Kenya, forests are under three types of ownership; government, community (trust land), and private (RoK, 2016c), with each owner taking a lead management role. In LCF, the household respondents (81%) perceived that the community had a role in its management. The government had a minor role. Community and council of elders were the main management approaches being implemented in LCF (Figure 5). Though there is a strong perception that TCFBM, also called traditionally protected indigenous forests in Tanzania (Ylhaisi, 2006), is better than command and control (Mohammed and Inoue, 2012), in Loita, it seems to show a situation of resource degrading and a weakening traditional management system. This trend was confirmed by KI interviews with government officers who expressed extreme fear over land parceling. In contrast, KI, with older people, expressed fear that inviting other stakeholders like the government, who has immense power, will most likely destabilize the existing systems and impose her will and systems, resulting in gradual bureaucratization of the institution, as noted by Fisiy (1995).

Table 1. Policy-makers perceived factors that caused the Government of Kenya to initiate decentralization of forest management (N = 36).

Broad categorization*	Reasons (national level perspective)	% of respondents	Loita Perspective as perceived by the Author
C	Deterioration of forest conditions leading to inadequate forest resources	23	Surplus resources
C	Failure of Command and Control	17	Community system strong
O	Pressure from partners	17	External influence starting
C	Low participation of stakeholders in forest management	10	Community only partner
C	For more efficient services in partnerships, conserving and management of the forest	10	The community is fully in-charge
C	Devolution of power and responsibilities to Forest Conservation Committees and CFAs	10	Power with the community
O	Political interference	4	Politicians joining the Oloibon institution
O	Unresponsive policies and legislative framework	3	Traditional system responsive
O	Kyoto protocol requiring governments to involve communities in managing natural resources	3	Community in charge
O	The global trend in other sectors and political establishment	3	More stakeholders getting involved

* The broad categories include conservation (C) and others (O).

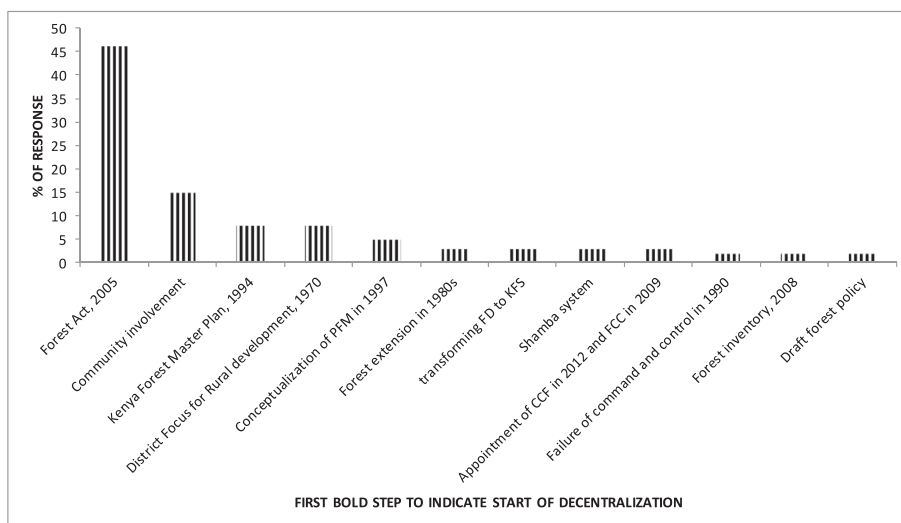


Figure 4. Proportion of policy-makers who mentioned different indicators of the start of decentralization in the forestry sector.

Table 2. Policy-makers perceived indicators of forestry decentralization in Kenya (N = 36).

Broad category*	Indicators of decentralization in Kenya (National perspective)	Response %	Loita Perspective as perceived by the Author
O	Sustainable forest use	11.5	Forest in good condition
P	Formation of Semi-autonomous organization responsible for the management	11.5	Loita has autonomous community organizations
O	Community attitude change toward forest management	11.5	The community has a positive attitude towards LCF
P	Ecosystem-based management approach	7.7	Practiced by communities
P	More stakeholder (NGO, church, and private) participation	7.7	Starting
O	Fewer conservation threats (human-induced) to gazetted forests.	7.7	Human threat increasing
P	Formation of County Forest Licensing Committees	7.7	Community resource appropriation committee
P	FCC responding and mainstreaming stakeholders issues to KFS board	7.7	FCC advice on forest management could apply in LCF
P	Subsidiary legislation to operationalize Forest Act	3.8	Community regulations
P	Sharing benefits and responsibilities between government and community	3.8	Community sharing responsibilities and benefits
O	Recognition of all forest types by the Forest Act 2005	3.8	Recognized by relevant laws
O	Forest management plan	3.8	None available
O	Efficient services	3.8	Prevailing in LCF
P	Creation of Charcoal Producers Association (CPA)	3.8	Charcoal use starting
O	Recognition of CFAs	3.8	CFA registered

* The categories include: Process (P) and Outcome (O).

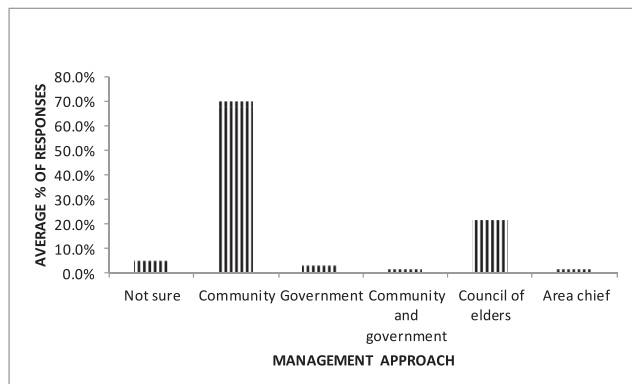


Figure 5. Household respondents' perception of the management regime being implemented in Loita (N = 122).

(b) Forest Governance Model Emerging in LCF

The community institution involved in LCF management was the Oloibon and is headed by a Laibon (a traditional leader, the seer, and the custodian of the forest) who had expressed interest in having his committee members trained in modern forest management skills in 2016 during FGD and KI discussions. The training of committee members was a response to the weakening of the Oloibon institution. Additionally, the Laibon has expanded membership of his council by bringing in National Government (NG) officials, elected leaders, and the elite (these are community members who have gone to school and are formally employed or involved in a business and working for NGOs who would provide support through lobbying and fund-raising). These changes were meant to enhance the Laibons' power and authority in forest management, as Mbuvi et al. (2015) noted. Further, the inclusion of more stakeholders was a system of "fostering resilience," as noted by Bixler (2014), and an emerging pluralistic partnership where governance

should be adaptive, multi-level, and focused on learning across levels and scales of organization.

In some organizations like the national government, the community will “assign” functions to stronger people who enjoy more rights, creating a possibility of the community being dislodged in critical tenure and rights decision positions. These stakeholders’ inclusion brings onboard imposition of modern conservation rules, land-use changes, loss of territory, and the individualization of risk incurring vulnerability. In Loita, FGD and KI indicated that the new members joining the Oloibon institution are not subjected to elections but just picked by virtue of society’s status or the organization they represent. The appointment is not good governance practice and may negatively influence the situation in LCF and negate the exclusive system created by traditional institutions and how decisions were made through a council of elders that is a representative institution. Further, these appointees and whose allegiance may not necessarily be the community may negatively or positively affect the Oloibon committee composition. The inclusion of government officers like the chief and Sub-county commissioner in the Oloibon institution will facilitate the inclusion of state interests (Garcia, 2015).

(c) Use and Access of Forest and Forest Resources

Community access and use of LCF was guided by the traditional tenet that “one cannot steal from oneself” (Mbuvi et al., 2015), a virtue being negated by the elite and wealthy who have delineated large tracts and build magnificent homesteads in the forest in what Garcia (2015) calls laying claim. Forest degradation was being encouraged by the existing traditional system where the Oloibons environmental committee would decide who to cut what and where without elaborate management plans and approval regulations. Further, the community, through KI, feared that government participation might lead to forest degradation. This scenario was premised through a local saying that “the owner of the cow turning to be a lion that eats the cow” in that “if the government owns the forest, the Forest guards shall destroy the forest.” The community perceives fairness in resource access from a premise that “pockets shall never be filled and pockets shall never be empty” in that “the forest shall never fail to provide for the community, but it may not be enough,” indicating the need for sustainable utilization. The key informant interview elaborated this further by indicating that growing maize and beans in the forest is destroying the forest as it benefits individuals, unlike grazing livestock. This wise counsel has conserved the forest for decades but may be changed individual titling.

Loita Sub-County, which includes the forest, has been declared an adjudication area, and the community supports the premise that titling will control uncontrolled access common in common property resources. The Loitans have also opposed a forest management plan through Ilkerin as they believed it might lead to them being chased away from Loita as it

happened to Maasai in Ngorongoro Crater in Tanzania where after developing a management plan, the Maasai were chased together with their livestock to pave the way for a national park (Bellins, 2008; Rogers, 2009).

(d) Forest contribution to community livelihoods

The six study sites’ communities were accessing different products from the forest (Figure 6). The forest was hardly providing any product to households in Olorte site, which are mainly farmers. Communities not living inside or near the forest like Ilmarai and Ilkerin indicated the forest was a source of food provided to them by the homesteads in the forest who were engaging in farming and providing food to those households outside the forest. Loita forest provided products at times of hardship to those inside and adjacent to the forest, mostly grass during drought conforming to World Bank (2013) that forests are also a critical reserve to which people can turn to during times of hardships.

Households used the forest to access traditional forest products like firewood, poles, and grass. Loitans may lose if the government becomes a management partner since The Forest Conservation and Management Act 2016 (GoK, 2016c) does not explicitly allow for farming, timber, and poles cutting in indigenous forests but allows firewood, and grazing. This partnership will deny the community timber splitting, which is a very lucrative source of income. The households entirely rely on the forest for household energy. The household respondents showed that between 1990 and 2011, household forest use for energy use has remained constant with minimal reliance on non-forest-based sources like solar, gas, and electricity (Table 3). Bio-gas, a cheap source of energy whose raw materials are readily available in Loita, was not being used, and there is a need to enhance its use as a means for conserving the forest.

Forest-based livelihood sources were varied with households indicating the various activities that were to give income to households, including; honey, firewood, grazing, and timber. New income sources like tour guiding were emerging in Entasikira. The perception of the change of the livelihood sources from 1990 to 2011 was discussed from major livelihood sources contributing positively to household livelihood, focusing on agriculture (Table 4) and forest product. The condition of agriculture in 1990 in all sites was better, especially in Empupurtia and Nkopon. Improved income from agriculture in Loita directly leads to forest degradation since farming space is created through forest clearing.

(e) Relationship between community and Forest managers

In LCF, 66.7% of the respondents indicated that they were getting a fair deal from the forest managers, while 33.3% indicated that the deal they were getting was not fair. The households who felt they were getting a fairer deal from the forest was based on how; the forest was

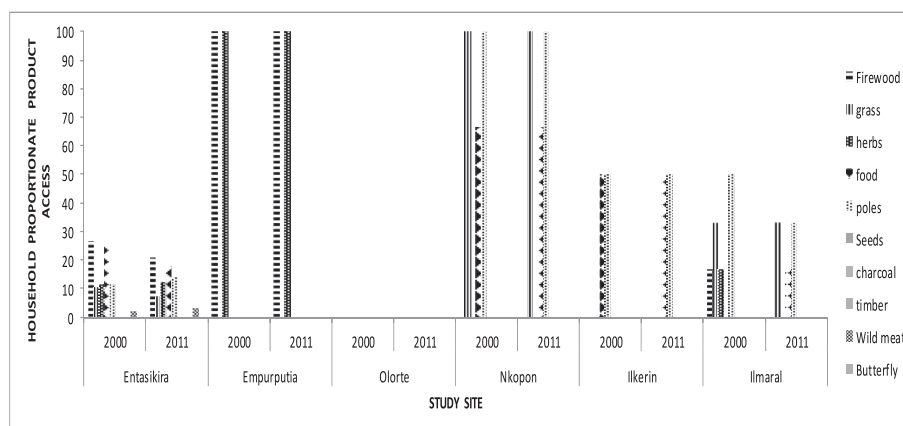


Figure 6. Respondents perceived household forest products access trends between 2000 and 2011.

Table 3. Household sources of energy between 1990 and 2011 per study.

Village	Response % per site											
	Entasikira		Empurputia		Olorite		Nkopon		Ilkerin		Ilmarai	
	1990	2011	1990	2011	1990	2011	1990	2011	1990	2011	1990	2011
Charcoal	6	8	0	0	7	7	0	0	50	50	11	11
Firewood	81	77	100	100	93	87	100	100	25	25	67	67
Gas	1	2	0	0	0	0	0	0	0	0	0	0
Kerosene	12	13	0	0	0	6	0	0	25	25	22	22
Solar	0	0	0	0	0	0	0	0	0	0	0	0
Generator	0	0	0	0	0	0	0	0	0	0	0	0
Electricity	0	0	0	0	0	0	0	0	0	0	0	0
Briquettes		0		0		0		0		0		0
Total	100	100	100	100	100	100	100	100	100	100	100	100

Table 4. Condition (better or worse) of income from agriculture and forest products from 1990 to 2011.

The condition of income from Agriculture and forest products since 1990	Response per site %											
	Entasikira		Empurputia		Olorite		Nkopon		Ilkerin		Ilmarai	
	F	A	F	A	F	A	F	A	F	A	F	A
Worse	6	14	0	0	7	7	67	0	100	100	40	17
Better	58	73	0	100	47	60	33	100	0	0	40	83
Not livelihood income source in 1990	36	13	100	0	46	27	0	0	0	0	20	0

contributing to household livelihoods, the households relate with the forest in terms of access (formal and informal), how the community was involved in the management and conservation of the forest, how sustainable was the access to the resources in the forest, and how the forest offers both ecological and social services through water catchment and as a place to undertake cultural practices. The households perceived fair deal from the forest and forest managers have resulted in an increased settlement in the forest: including the construction of schools, farming and settlement being allowed, vegetables growing in the wetlands and swamps. This situation points to a degrading forest as in 1999, human impacts were very limited in LCF and confined to settled zones, as noted by Kiyiapi (1999).

The relationship between respondents and forest managers (Oloibon and or his committees) is indicated in Figure 7. The forest areas providing high benefits had good relationship ratings like Empurputia, where the community had unrestricted access. Ilmarai had hardly any access except during the dry season. The community did not consider grazing as a benefit. They clearly defined a forest as entim (forest), and the glades were not considered part of the forest as indicated during FGD. Corruption, harassment by the Oloibon forest committee, and restricted access were mentioned as the reasons for the perceived poor relationship between community and forest managers in Loita. The communities in Loita proposed (100%) that the community's deal can be improved (fairer) by more

community involvement in forest management. This situation was an indication that the system requires improvement due to a few members who were inequitably accessing products like timber for commercial use and fencing off large tracts for exclusive use by individuals.

3.5. The appropriate forest partnership governance regime for LCF

Despite respondents indicating (78.2%) the forest was well managed, Focus Group Discussion and KI interviews showed that in LCF, stakeholders, including the government, were being enjoined informally in LCF management was based on their skills, the role of their organizations, and political alignments. The involvement of other stakeholders was an indication that the management approach may no longer be appropriate. Key Informants and FGD point to three emerging scenarios: (i) genuine concern by community members with their forest getting degraded and staring at potential explosive land access and use conflict, (ii) elite capture meant to safeguard their advantaged access to forest land and resources through manipulating the community and both levels of government to their advantage and (iii) a TCBFM regime that is focused on people, their livelihoods and local organizations, their knowledge of their environment and local management systems (Ylhaisi, 2006) unable to sustain these principles. Power relations have started tilting as the government joins since it has started taking up and participating in enforcement and conflict management roles. Changes in power relations may lead to the government exercising some of its acquired and eminent rights, including veto power to disallow farming activities in the forest.

The emerging regime in Loita that is witnessing communities adopting multi-stakeholder inclusion may lead to relocating the seat of power from the community to a higher level (government or multi-stakeholder committee) to deny the community the same level of access rights as before. It had been observed that local institutions are the most effective in forest management if their roles include law enforcement, forest protection, conservation education, and community awareness, tree planting, and alternative livelihood activities (Lawrence and Watkins, 2012; Giliba et al., 2013). The emerging management regime in LCF needs to enhance the capacity of Oloibon to undertake the above roles as the lead organization with partners supporting. The emerging

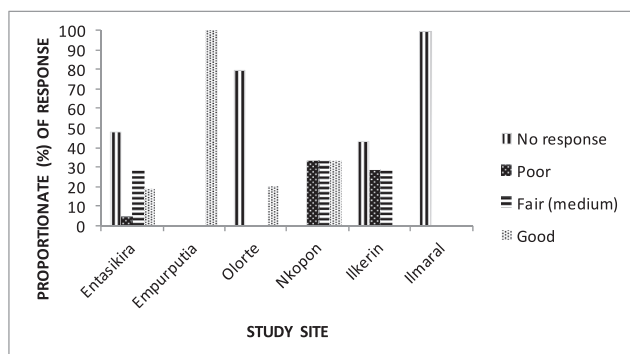


Figure 7. Household rating of relationship with Loita forest managers.

management regime would stop the tragedy of the commons scenario being witnessed in LCF as was stated by Garcia (2015, p215) that was based on the observation that “others in the area, seeing the favourable locations that these two family heads had picked or ‘grabbed’ and fearing that they would miss out, started to panic and, in a matter of days, about 15 individual had rushed to book and grab their land as well”. The management approach that would ensure that the forest and the community do not lose should implement as transformation as noted by Blewett (1995) through;

1. Zoned utilization and developing an integrated landscape management plan to support sustainable use of forest resources and rural development
2. Strengthening the indigenous control systems.
3. Adopting protectionist-inclusive approaches to support equity, fairness, and pro-poor approaches
4. Facilitating the Oloibon leadership and management that ensures more dynamic and a constantly re-engineering system to accommodate new development (Fisiy, 1995 and Cheka, 2008).
5. Changing lifestyles and attitudes within the community (Fisiy, 1995) in Loita as a paradigm shift of traditional institutions to enable them to mediate between the past and present themselves as an agency for change.
6. Establish partnerships to bring in the knowledge and skills required to address the current management and governance through pluralism appropriately.

In deciding what an appropriate governance regime for LCF is, there is a need to realize that some stakeholders giving up some powers may not always lead to improved governance and economic performance as it may reduce the ability of the national government or the community to redistribute resources and therefore the ability to assist the less developed sub-national units, poor households, control political elites capture (Institute of Economic Affairs (2010). A situation that was exhibited in Dida where PFM has created new barriers to entry and the poor are no longer able to obtain a free permit for collecting pupae from KFS since they do not have funds to pay to join the butterfly farmers’ user group (Schreckenber and Luttrell, 2009; Mbuvi and Musyoki, 2013). Therefore, appropriate governance partnership (pluralism arrangement) will be one that will ensure the community and the forest does not lose but has to ensure that:

- (1) the community retain their power and authority as the government join the partnership but avoid negating community gains realizing the community capacity constraints, political resistance from entrenched interest groups, limited downward accountability, the heavy burden of devolved responsibilities relative to rights and authority, and elite capture of authority by powerful interest groups in contexts of weak and shifting governance (German et al., 2014).
- (2) the forest governance ensures community and other stakeholders’ involvement, good governance structures, support precise mechanisms for benefit-sharing, and does not insubordinate the community.
- (3) the partners allow adaptive management under pluralism where the community is allowed practices like forest settlement, although not permitted by the law (GoK, 2016c).
- (4) ensure that traditional institutions continue to grant management or decision-making authority over the resource and retain enforcement authority, as Wyckoff-Baird et al. (2000) stated. The other stakeholders recognize and respect the local people as stewards of forests and appreciate that they have the knowledge and skills of resource management, which understand the holistic views and related ways of life of the local communities (Hundera, 2007).

- (5) the inclusion of civil society, including NGOs, professional groups, and unions, is done to ensure that the government will not undermine the community rights and support important contributions to secure community rights through research and analysis, civic education, and lobbying (Paudel et al., 2008; Grant, 2000).
- (6) Communities opt for capacity building and not sharing management responsibilities and supporting legislation to ensure they can manage the resource.

The above should be the guiding principles as noted by Hardin (1968), that it is a mistake to think that we can control the breeding (actions) of mankind in the long run by an appeal to conscience, no good has ever come from feeling guilty, neither intelligence, policy, nor compassion and the social arrangement that produce responsibility are arrangements that create coercion of some sort.

4. Conclusion

There is a need to enhance the appropriateness of TCBFM to control settlement in the forest, support forest rehabilitation, prevent excessive extraction of forest resources, create awareness on the need for partnership as local peoples alone cannot conserve forests. These changes will ensure that LCF would continue being considered a show-case on environmental conservation in Kenya. The Loitans need to interact with outside entities for technologies, techniques, markets, and other things that might not be available to them, including the need for restraint in harvest, clearing forest areas, and consumption, a scenario feasible under pluralism. The transforming scenario where additional stakeholders are invited to join in LCF management because of the recognition of past failures and examples of successful participatory management in other forests by the Oloibon needs to be enhanced. This change should be accompanied by capacity building for all stakeholders to support and implement training that should deviate from the curriculum developed for command and control but should include TCBNRM.

Conclusively, the emerging management scenario in LCF is a complex and dynamic process that includes constant learning and experimentation. Therefore enhancing the appropriateness of TCBFM in LCF should be phased in gradually and involve; building consensus through an open, transparent and inclusive process, participatory decision-making, institutional re-crafting, technical and human capacity building, provision of adequate financial resources and incentives for investment, tailoring objectives to local contexts, and developing the flexibility to adapt to different situations and changing circumstances while ensuring that the regime succeeds at balancing the threefold goal of forest conservation, poverty alleviation, and economic development. The situation should be supported by adequate documentation awareness creation and policy-makers’ engagement at the county and national government level. Thus, the community should and shall not lose if the partnership enhances traditional management institutions’ capacity through a structured partnership with strong partners like the government and adopt a pluralistic approach. The government needs to focus resources to develop this management system for Loita and other forests under a similar governance framework.

Declarations

Author contribution statement

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Data availability statement

Data will be made available on request.

Declaration of interests statement

The authors declare no conflict of interest.

Additional information

No additional information is available for this paper.

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