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High community expectation against low societal transformation through community based income generating activities. Analysis of Participatory forest management in Kenya 2005-2013.

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Abstract
The implementation of the participatory forest management (PFM) starting 2005 was meant to help in forest management and also assist the forest adjacent communities to benefit from these forest based resources through agreement with Kenya forest Service (KFS). Analysis of socio-economic reports and associated participatory forest management plan (PFMPs) undertaken between 2005 and 2013, indicate sizeable income generating projects (IGP) as part of social function of forest such as recreation have not been realised by community forest association (CFA). It is notable that several facilitating factors such as proximity to major urban areas and significant tourism circuits, necessary for development of these sites have had no impact. In some sites development of business plan did not manage to take IGP to the desired level. This failure leaves the CFA in the same status prior to the implementation of PFM in spite of huge resources invested in mapping and detailing resources potential. The CFA stakeholder's composition, a structural weakness that failures to include more able and literate local stakeholders (business and professionals) is a major obstacle to enabling exploitation of forest ecosystems potential, thereby remaining localised and a closed unit. Thus, there is need for paradigm shift in terms CFA empowerment for exploitation of social functions of forest resources

Key words*: forest, participatory, income generating potential, community,*

1.0 Introduction

Forest play three broad roles from ecological roles like water catchment, carbon sequestration and biodiversity conservation; economic like employment, ranging from products like wood, non-wood forest products like herbs, domestic energy like firewood supply; social functions include recreation activities like camping, tourism, hiking. Tropical forests provide distinct contribution to rural livelihoods [2], [23], [8], [4], which can be analyzed within the broader context of economic development according to [5]. Setting aside forest area for social functions indicate to what extent this role of forests ecosystem is taken into account by countries and forest managers in particular. Presently, 30% of world countries and territories have forest areas set aside for social services. These social functions provide great opportunity towards diversification of livelihood sources in addition to the tradition economic use of forest by communities. While in East Asia, Europe, and South America these areas are widely available, this is limited in Africa with forest use being mainly use for tradition products like firewood, herbs and timber. Globally, an estimated 3.7% of forest area is devoted to social functions. This percentage increases to 30.9% when considering the total area that has social services among its functions. This implies that large areas of the forest ecosystems have not been designated for social services. After South America, Europe has the largest percentage of forests ecosystem designated for social services about 8.3% of total forest area. The Africa continent lags behind in this sector particular with regard to promotion of social service sites and income generation particularly as community income generation sites. In East Africa these forest sites have high potential of scenic sites resulting from volcanic activities in Cainozoic era and have great opportunity for increased income generation.

The genesis of involvement of community in forest management was mainly to reverse forest degradation in countries like India, Nepal and Tanzania. Later, the focus shifted to addressing rural poverty [16]. In Nepal an

important activity of community forestry is income generation. The Community Forest User Groups (CFUGs) in Nepal generate income from various sources such as the sale of forest products, membership fees, and fines from rule violators. The income generated is not shared with the government; instead, it accumulates in the CFUG funds. The traditional approach has been to target tree growing in form of plantation as major source of income. The involvement of wide stakeholders membership in forestry was meant to improve management, reduce destruction and increase forest cover. In Kenya, following the paradigm shift from command and control, participatory forest management (PFM) was formally adopted in Kenya in 2005 with the enactment of Forest Act 2005 [24]. Although communities had been involved informally in forest management, the momentum picked up with enactment of the forest legislation in 2005 to facilitate their involvement. Following this paradigm shift, a new focus on forest products emerged from the tradition forest products like firewood, grazing/forage, herbal plants and water; an interest has been growing in recreation industry as way of diversifying their livelihood and income sources. It is notable that prior to the enactment of Forest Act 2005 now revised to Forest Act 2016, community self-initiative towards forest protection and conservation had picked up in earnest in the late 1990s. At that time, there was no drive towards income generation but was mainly conservation.

2.0 Methodology

In this research qualitative and quantitative analysis of the various participatory management forests plan (PFMP) were carried out. The selection PFMP sites considered eco-climatic zone, dry and humid of the forest in the country, proximity to urban area development and tourists destination and circuits. The first level of analysis was the socio-economic reports generated during the preparation of PFMPs (2009-2013), which were the basis of identifying forest based opportunities and they also contained characteristic features of community forest association. During this stage, various parameters were comparatively analysed from Community Forest Association (CFA) organisation such genesis, literacy level of the community, income sources and forest use preference. Other parameters analysed were forest threats, time since PFMP was completed, forest biodiversity, tourism attraction features, income generation potential (IGP) and constrains to achieving IGP from community perspective. This was followed by analysis of PFMP zonation and finally the participatory forest management plan (PFMP). Rapid sites analysis was undertaken in 2014 to re-establish the status in these PFMP sites using a short checklist.

3.0 Results and Discussion

3.1 Characteristic of selected sites

The various PFMP sites analysed had different operation period upon approval by Kenya Forest service (KFS), for Iveti forest approval was between 2011 – 2016, Upper Imenti (2009-2014), Kahurura-Nanyuki (2011-2015) [9], [10], [11]. These forests ecosystem have a combination of plantation forest and natural forest in varying proportions Iveti 364.07 ha with 260.35 ha, as plantation; Upper Imenti 13904.27ha with 1,085.3 ha, plantation; Kahurura-Nanyuki - 9,854.6 ha Plantation 1227.38 ha). The geo-location characteristic features for the various sites display wide beneficial features that would enable them to tap the potential within their area. Iveti forest is located within the urban area of Machakos, which is fast expanding towards Nairobi metropolitan. The upper Imenti forest is located within the Meru urban area also with the forest bordering Meru-Nanyuki highway, within the Mt Kenya ecosystem a major tourist attraction in Kenya. The Kahurura-Nanyuki forest is a short distance from Nanyuki town, along the busy tourist northern corridors. It is part of the major tourist attraction of Mt Kenya and also within the fast expanding Nanyuki town that have attracted several foreigners as residents. With the Mount Kenya ecosystem circuit other tourist facilities that are conveniently accessible include Naro Moru lodge, Bantu, Sport Man Arms, Ol Pajeta and sweet waters. In addition there are two airstrips in this tourist circuit [11].

3.2 Community Forest Association structural arrangement

The community forest association (CFA) is an important community organisation structure for stakeholders engagement. CFA organisation is necessary in attracting investors and other stakeholders, especially where it is structured to easily accommodate new entrant. The structural design of the CFA is such that its starts from household level from where user groups are formed, which in turn forms legal entities in the name of community based organisations (CBOs) (Fig 1). It is from these CBOs that representation to the CFA is drawn.

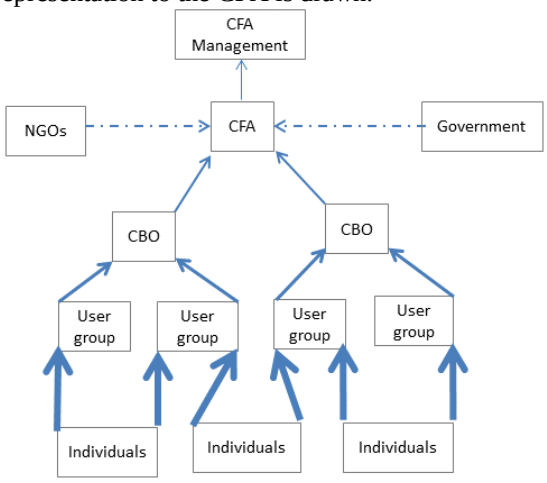

Figure 1: CFA structural arrangement

In some instances like in the case of Iveti and Upper Imenti the community based organisations are drawn from nine organisations based on forest zonation area, which is a common trend in most community based organisations in Kenya. This ensures that all the administrative units around the forest are catered for. This makes the CFA structurally a grass root organisations that initially locks out other stakeholders at this stage, who might be business people, local professionals or other organisations. According to [6], to realise empowerment in society, there is need for construction of links that taps on individual stakeholders strength, competence and proactive behaviour. In the case of CFA in Kenya, this component is missing in the

construction of these organisations thus creating a structural weakness. Participation of wider community is critical in ensuring ability to achieve intended goals and improve access to resources.

The first structural weakness of the CFA is imbedded in its formation, which creates inherent weakness. Apart from the local community other potential stakeholders join the CFA as special groups with no grassroot representation based on this structure (fig 1). In deed quite often business people and professionals even when they come from the same area as other CFA members they are invited as advisors with restricted function role. According to [13] CFA lack of defined structure and hierarchy at local, regional, and national levels, with no clear exclusion and inclusion definitions, which creates a major challenge to their growth. They tend to be protective to membership, thus locking out important growth agents. The injection of expert knowledge in organisations often acts as accelerators of the growth, since they bring with them knew knowledge such as re-organising the organisation for effectiveness, what the CFA fears most. According to [19], 94% of the 22 CFA they analysed had undertaken regular elections but analysis indicated continued involvement in tradition forest activities. This is mainly because the elections largely involved local community and no new interest was sourced from other stakeholder nor were there interest from outsiders. While there is no guiding policy on CFA formation in Kenya, purely left to community own design, the individuals involved in CFA formation and management at the local level do not make efforts to bring on board professions or local companies. This is the missing energy in CFA that would help them tap on social functions of forest for livelihood support such as income.

The formation of several CFAs in early 2000s was as a response to forest destruction as witnessed in Upper Imenti forest, Rumuruti forest among others, thus more concerned with ecological functions [24], [17]. Similarly, at the same time the agitation for management regime change in forest management in early 2000s was as a response to forest destruction rather than need for creation of income generation through tapping into forest social functions. This need required grass root communities that would pay close watch to the happening in the forest and create a buffer zone for outsiders keen on forest exploitation illegally for economic gains. However, the CFA as organisation never moved on to improve their livelihood through tapping into social functions where income could be raise as result of effective focus on ecological functions. A study by [13], [12] noted that challenges posed by CFA's include lack of transparency among officials, failure of some members to contribute funds, sharing of benefits, and a dictatorial tendency among some of the leaders. Most of studies on obstacle to realisation of community forestry have largely focussed on access, lack of participation, elites capture and equity but not on structural arrangement [14], [9]. These issues though relevant are to some extent shaped by structural arrangement of community forestry. Some authors have noted that the word 'community' can obscure a variety of group affiliations and concerns regarding the term community [3], [9]. This obscureness precipitate the structural weakness and thus the inability to realise social functions benefits of forest among other economic gains associated with forest ecosystems.

An assessment of the literacy level of the forest adjacent community, income sources and preference of forest use sheds light on the community structure that connects with the CFA formations and pre-occupation. According to the socio-economic survey conducted in Iveti in 2010, Upper Imenti in 2006 and Kahurura in 2011 the local communities are largely dominated by primary and secondary school literacy level (fig. 2). Literacy level is an important prerequisite for engagement in higher negotiations, exploration of new opportunities and thus this limitation constitute a high liability for the CFA and their ability to secure better revenue from forest ecosystems.

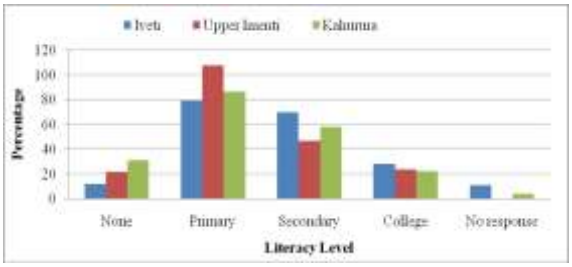

Figure 2: Literacy level in Iveti, Upper Imenti & Kahurura forest Ecosystem

In Kenya, generally when people get education they move out of rural areas in search of jobs and improved livelihood. The effect of this migration to urban areas is to leave low literacy capacity in rural area thus limiting ability to handle demand and complexity of PFM beyond normal forest use of firewood, patrol and grazing, filtering literacy levels. This means that the panacea to PFM performance improvement lies in rural communities tapping on literate urban migrants, who have ability to engage Kenya forest service (KFS) in demanding more benefits from forest resources. Karura forest is one such case, being located in Kenya capital city that is Nairobi, it benefits largely from such elite input and has been able to demand more from KFS in terms of forest management and beneficial use of the forest with a great focus on social functions of the forest rather than products extraction. According to [21] study of the impact of a literacy in Kenya and Uganda comparing literate and non-literate persons found that literacy have impact on individual performance and success. Having high literacy allows individuals to high ability to greater self-confidence, self-esteem, the ability to participate in and influence new spaces, the ability to formulate and express ideas, and improved relationships with partners.

3.3 Livelihood and Forest Preferential Use

When livelihood support and income sources are considered they point to the stagnation of the community and the need to re-examine the current CFA composition and approach in forest management. A case point is Iveti forest where the main sources of livelihood according to 2010 socio-economic is crop farming (88%), livestock rearing (70%) and poultry (44%). Similarly, in Kahurura this is mainly crop farming (77%), livestock-milk and poultry (49%). This emphasises the common livelihood approach. On seeking to understand the most preferred form of forest use the variation were strongly skewed towards

extraction of forest products (Fig. 3, a, b, c). This is also reflected in potential sites for social forestry where inclination towards extraction is high, due to limited capacity and the need to meet local livelihood. This could be associated with limitations of individual members of the forest association. Education has long been identified as key to translating the ideals of sustainable development into practice through enhancing people's skills and capacities to respond to change and supporting the transition to a green economy [20].

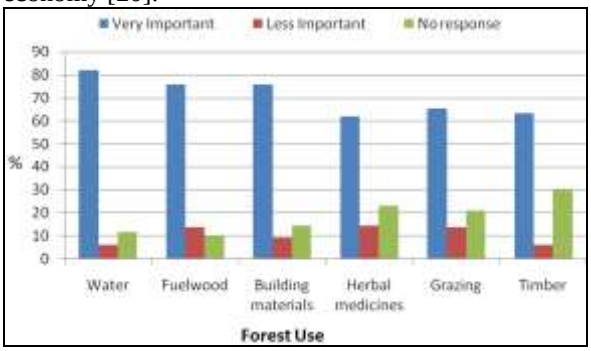

Figure 3 (a): Preferential use of Forest in Iveti

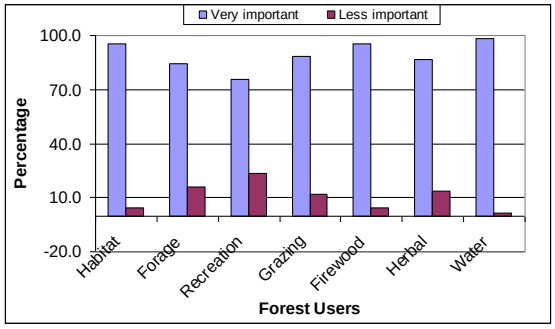

Figure 3 (b): Preferential use of Forest in Upper Imenti

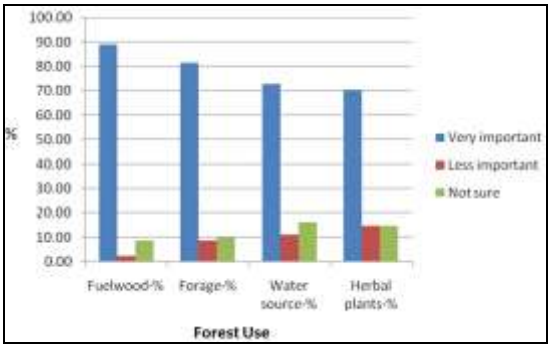

Figure 3 (c): Figure 1: Preferential use of Forest in Kahurura

3.4 CFA formation goal

This aims of forming groups associated with respective forest was further assessed, it emerged that the wide spread objective was forest conservation but not investments. It is evident that forest destruction has reduced under CFA watch starting early 2000s. In Iveti the aim of the groups was to rally the local communities neighbouring the gazzetted forests into the management of the forests to ensure increased ownership and protection of the forests through Participatory Forest Management (PFM). In Upper Imenti the aim of <70% of the groups was conservation and protection with income taking only (10%) and access to forest products (10%) [9]. In Kahurura the most common (58%) aim of the groups was forest conservation followed by improvement on livelihood mainly income (8%). In all the three scenarios, issues of income and recreation are rated low or not at all, meaning that the local community see themselves as having no capacity or they are not aware of how they can contribute to improved livelihood.

The issue of community forest conservation is clearly visible through reduced forest destruction in the country starting early 2000s that can be linked to community surveillance of the forest ecosystem neighbouring them. This change has been recorded in several ecosystems in the country among them lower Imenti, Upper Imenti and Aberdare ecosystem. Studies by [17] indicated that all the 22 CFA analysed, they were heavily involved in forest conservation like seedlings planting, pruning and protection, which is very similar to the findings of this study. Similarly in Madagascar, studies indicated that community based management are effective in reducing deforestation [19]. The threats prior to the PFM process were mainly logging, theft of forest products and fire in Iveti. In Upper Imenti this was charcoal burning and illegal logging, which are highly commercial activities. This was followed by overgrazing, poaching, forest fires and exploitation of fuel wood in that order. In Kahurura, the major problem was logging, poaching and encroachment. In the absence of PFM transformation we are at risk of seeing the emergence of these threats considering that the forest are viewed as major sources of livelihood.

3.6 Income Generating Potential

Among the forests analysed, there several potential sites for social forestry functions that could be used to raise income as recreation facility. In Iveti, some of the tourist attraction that can be developed include four campsites namely Kitale, Kartunda, Ingulyuni and Kusyomuomo in additional to several nature trails and picnic sites that have already been identified (Fig. 4).

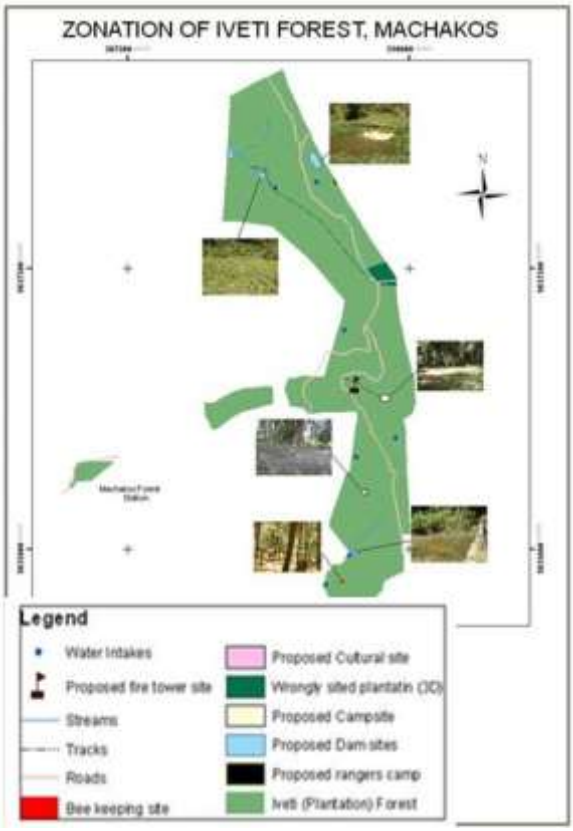

Figure 4: Zonation and potential social function sites of Iveti forest

These sites still remain undeveloped in spite of the forest being within a fast developing urban area. Other benefits including camping, tourism and bee keeping, which have not been exploited (Fig. 5).

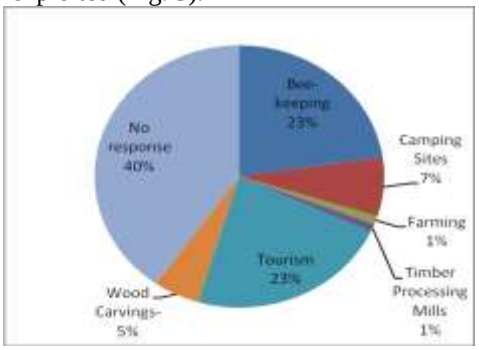

Figure 5: Untapped IGP Iveti

Kahurura-Nanyuki forest have the highest biodiversity with several fauna species including herbivores like duiker (*Neotrragus moschatus),* bushbuck (*Tragelaphus scriptus*), deffassa water buck, black and white colobus (*Colobus guereza*) and Sykes monkey (*Cercopithecus mitis*). Others are the lesser bush baby (*Galago senegalenses*) and greater bush baby (*Galago crassicaudatus).* The carnivores include spotted hyena (*Crocuta crocuta*) and the striped hyena (*Hyena hyena*). There are several species of birds in the ecosystem including Ayres' hawk eagle (*Hieraaetus dubius),* crowned hawk eagle *(Stephanoaetus coronatus),* hartlaub's turaco *(Turaco hartlaubi)* and Jackson's francolin *(Francolinus jacksoni),* among others [11].

In Kahurura-Nanyuki forest attraction including tourism potential according to 50% of the respondents (Fig. 6).

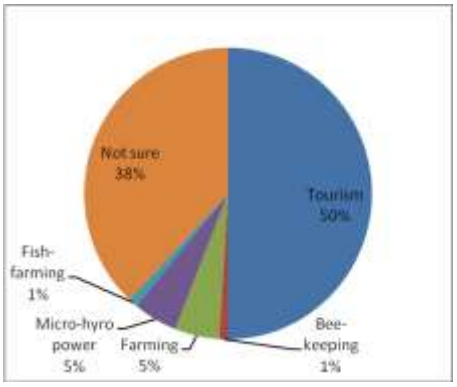

Figure 6: Untapped IGP Kahurura

Some of these sites include potential areas include Secret Valley (with a damaged hotel), Caves- Muteru, Rest houses (Ideal for camp, used by army for practice).

The tourism potential of Nanyuki Forest is even greater due to the other nearby tourist sites in the neighbouring Kabaru forest with *Thegu salt lick campsite*: It is situated in Kabaru (Kandune beat) and has a wonderful site ideal for tourism development (Fig. 7). This sites host *Thegu fishing cam*p: The camping site was established long before independence and is frequented by locals. It stands on two hectares of land and is operated by the Ministry of Fisheries. It is near Thegu Bridge along the main road from Chaka shopping centre to Sagana state lodge.

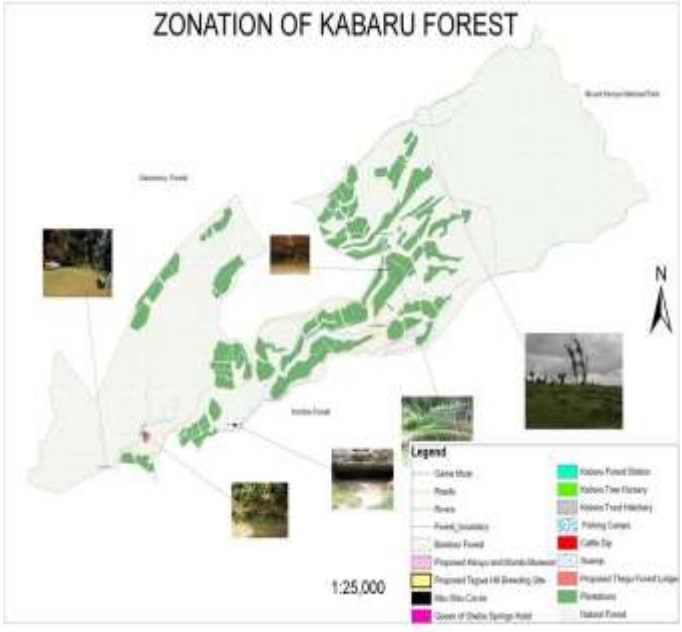

Figure 7: Zonation and potential social function sites of Kabaru Forest

In upper Imenti forest eco-tourism is mentioned as important social function of the forest according to 62% of

the respondents (Fig. 8). However, other extract untapped potential are also noted.

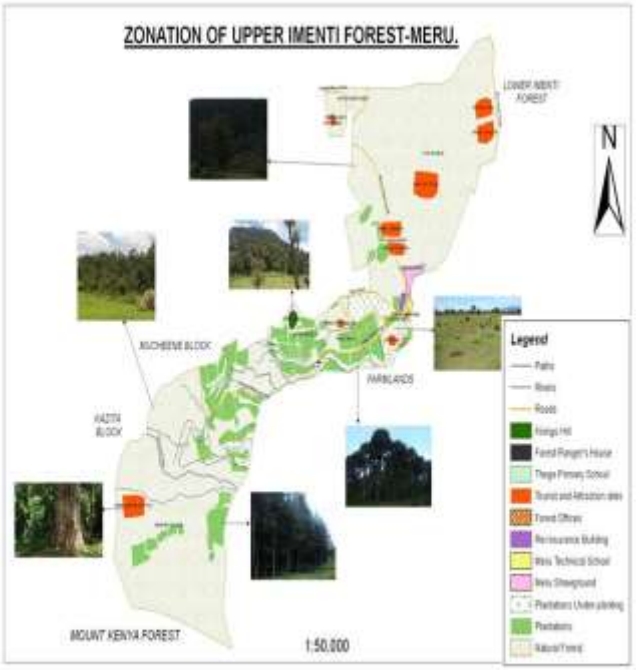

Figure 8: Eco-tourism potential at Upper Imenti

The upper Imenti forest have several fauna species of tourism significant, these include elephants, buffalo (rare), rabbits, dik dik, variety of birds various species of monkeys, porcupines, wild pigs, squirrels and mongoose. In addition several other attractions include Sacred Lake Nkunga, gigantic tree -King Muuru, Ecotourism site at Kithoka beat, campsite at KWS Kithoka beat and Narute trail at Kithoka (Fig. 9).

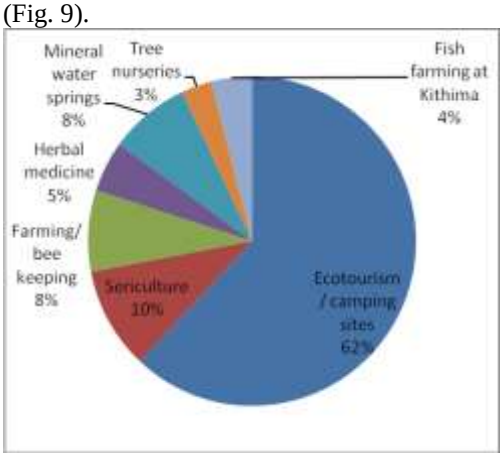

Figure 9: Untapped IGP Upper Imenti

3.7 Income generating activities not developed and constrains

In Iveti some of the constraints identified to income generating activities area insufficient funds (18%), capacity to manage project (22%) and government restrictions (9%). These reflect real challenges that could be resolved through structural arrangement where assistance and capacity is build either directly or through partnership. Injection of ideas and direct involvement of professional stakeholders could help tap into this potential. In upper Imenti forest, the development of these identified potential sites are also constrained by funds (52%), which could be overcome through partnership and capacity of the local community, which might be due to literacy level (36%). Similarly In Kahurura forest, the same factors were mentioned as posing major constrains to development of IGP, namely capital 19%, capacity 35% and information flow (3%). These are factors that can be resolved through local arrangement. It is a fact that procurement of these sites through government competitive bidding present a huge bottle necks for community because of the way it is structured such as legal and financial requirements. In areas like tourism the only way out is through reserved investments or portion of it and involvement of local investors such as hoteliers.

According to [17], introduction of PFM enabled CFA to participate in forest protection, monitoring and management but have limited involvement in decision making, forest income and resource control rights. This puts CFA at disadvantaged position in terms of improvement of livelihood in spite of huge investment of time in forest matters. To ensure viability and sustainability of PFM, [17] notes the need for access to forest revenue and improved access rights, but fails to pint out the exploitation of forest social functions. The Forest Act 2016 and predecessor Forest act 2005, provide limited user rights that are strongly mirrored on the traditional use with no access to high income investments. While studies by [15] indicated that household in PFM benefited more than none-PFM zones, the benefits were mainly along low income areas like beekeeping, butterfly farming, mushroom farming, ecotourism and forest related employment. Similarly, documentation done by [13] on assessment of CFA that were formed between 1999 and 2009 found same activities. These benefits did not included benefits from plantation harvesting and investments in recreation like hotels, yet conservation is a major pre-occupation of CFAs. In Lembus forest, [12] found community had effectively contributed in forest conservation by 75% involvement in tree planting. A shift from purely these traditional engagements to additional of other high income venture will help in transformation of communities in terms of improved livelihood.

4.0 Conclusion

The CFA operating in different forest areas have huge unexploited social forest function potential. The literacy level and structural weakness of the CFA that constrains engagement of professionals with more literacy level or local business is a major undoing. Thus, there is need to revisit the CFA formation and their operation with a view to injecting more resources in terms of more stakeholders who can be operation members of the CFA that could bring new ideas. Exploitation of the social functions of forest ecosystem could help improve the livelihood of the local community but a paradigm shift is necessary in CFA formation and operations. For example, local partnership would help to bridge the gap between literacy level and build capacity of these forest associations to use forest ecosystem near urban areas as recreation site and also as green spaces, thus raise income. It is notable that to exploit these social functions of the forest, policy framework would

have to facilitate this transition through inclusion in regulation for financing, planning and protection of local group in invests in such forest areas. Thus there is need also to focus on the role of social forests function in poverty reduction in national level strategy, which has so far not been reflected in any significant way.

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