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Community Perception towards Community-Based Forest Management (CBFM): A Case of Kilindi District, Tanzania

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Abstract

Community-based forest management (CBFM) entails a paradigm shift in the management of forest resources whereby local communities are closely integrated in the management of forests on their land. This article is based on the study conducted in selected villages of Kilindi district. It assessed the perceptions of local communities over the performance of CBFM in selected villages. Two case study villages namely Kwamwande and Balang'a were purposely selected for this study. The study revealed that the establishment of CBFM approach has improved the mechanism for conflicts resolution on the use of forest products. This has been possible due to improved forest management in both villages. In a related way, CBFM has improved forest governance, since this model emphasize more on transparency and accountability in managing forest resources. Furthermore, through this approach, well-defined boundaries of village forests have been achieved. Lastly, since the inception of this approach local communities have been complying with rules and regulations regarding forest management. The article recommends that community participation in forests management is crucial in attaining sustainable forests utilization to any community. Thus,

local communities should be at the center of decision making process concerning the conservation and utilization of forest resources at local level.

Keywords: *Local Community, Forest Management*

1.0 Introduction

It is estimated that roughly 39.9% of the total land area in Tanzania is covered by forest resources (Blomley and Iddi, 2009). Nearly two-thirds of the forest and woodland area consists of woodlands on general lands. Almost 13 million ha of forest and woodland area have been gazetted as forest reserves. The reserved area subsumes 1.6 million ha that are managed as catchment forests, and around 80,000 hectares of government owned plantations. The dominant tree species planted are *Pinus patula* and *Cupressus lusitanica.* Furthermore, there are 80,000 ha of private forest plantations (Iddi, 2002, p.59). Large part of the forest reserves has high levels of biodiversity and many endemic species, which are increasingly susceptible to a deforestation rate of over 1% per year. Between 1990 and 2005, forest cover fell by 15% due to increased deforestation in different parts of the country (URT, 2005). Tanzania faces acute forest deforestation associated with increased demand of biomass by human being and income generation activities. It is estimated that Tanzania lost an average of 412,200 ha of forests per annum between 1990s to early 2000s (UN-REDD, 2010). Specific factors attributing the increase of deforestation include but not limited to high magnitude of poverty amidst rural communities, high population growth, urbanization, overgrazing, wildfires, inadequate energy substitutes, lack of

efficient production and marketing. Equally, over-exploitation of wood resources, lack of land use plans and non-adherence to existing one, limited technology to utilize the available natural and energy resources and opportunities contribute to deforestation (URT, 2009; Miles et al. 2009).

Deforestation and degradation of forests resources usually befalls in both reserved and unreserved forests, but more intense in unreserved forests. Owing to scarce resources which could support sustainable forest management, deforestation and degradation have continued need immediate all inclusive intervention to ensure sustainable forest resources (Blomley and Iddi, 2009). Previously, the government together with international community worked together to address this problem of deforestation through forest resources management focusing at conservation (Kajembe, 1994). It is currently realized that the enduring forests deforestation is due to the impotence of past conservation approaches, which aimed to bring more forests under state tenure and protection as reserves or parks (Kiss, 2004). This approach placed local communities outside the rim of forest management, and consequently, the rate of forests deforestation and degradation was increasing from time to time (Wiersum, 2004). More important, foresters in recent years have begun to question whether the "policing model" of forest management is the right way forward. Realization of this, together with limited financial and human resources for the forest sector have led to the establishment of new policy that largely integrate local communities in managing forests on their land. Local communities were given avenues to exercise their freedom and power in managing village land forest reserves. These and other developments have led to a paradigm shift, and the only viable alternative to forest

protection is to make the people living adjacent to forests the guardians of the forest resource, and this has led to the birth of the concept of participatory forest management (PFM) (Wily, 2002).

Tanzania adopted community inclusive forest management initiatives in the 1990s. According to Iddi (2002); Kajembe et al. (2002), two main approaches which are Community Based Forest Management (CBFM) and Joint Forest Management (JFM) were established in Tanzania in managing forest resources. Since the inception of these two approaches, their activities have spread rapidly in the country. About 1.7 million ha is under JFM and 2.4 million ha is under CBFM. This entails that about 13% of all the forests in Tanzania are under participatory forest management (PFM) arrangements (Iddi, 2002). The main purpose of this article is to assess whether the inception of PFM model, particularly CBFM approach has benefited the local communities, and to explore community perceptions on the performance of CBFM approach.

2.0 Materials and Methods

2.1 Research design

This study employed mixed method research (MMR) design, in which qualitative and quantitative data collection and analysis were used. MMR involves combination of qualitative and quantitative data collection and analysis in a single study or program of enquiry (Creswell et al, 2003). The purpose of this integration is that using qualitative and quantitative data collection techniques and analysis provide a better understanding of a research problem or issue under investigation (Brannen, 2005). Much of the knowledge in this article was

obtained from qualitative research elements; however, quantitative approaches were used to complement these findings. Combining of qualitative and quantitative data collection and analytical methods helped the researcher to overcome the weakness or essential biases and the problems that originate from the single research approach.

2.2 Sampling

In this study a household was considered as a clear unit of analysis because it is the basic unit of production and consumption in the village. Household heads were preferred as the informants in each selected household. I consulted village register books containing the names of all households in each village to select the households used in this study. In each village, respective sampling units were then randomly selected using random numbers. The study put emphasis on the random selection of sample units to ensure that the sample selected reflects a true representation of the studied population. In some cases, I had to use purposive sampling to ensure that particular knowledgeable people are involved in this study.

2.3 Sample Size

Kilindi District has one hundred and two (102) registered villages, and only two (2) villages- Kwamwande and Balang'a were selected purposely because both villages are implementing CBFM. There are different opinions regarding what should be the ideal sample size to be selected for the study. According to Theodory (2009) a representative sample for statistical analysis should include at least 10% of the entire population in the study area. The selected villages have different numbers of household. Kwamwande had 462 and Balang'a had 353. Therefore, 46 (10%) households in Kwamwande village and 35 (10%)

households in Balang'a were selected to make a total of 81 respondents as a sample size for this study. In addition, three groups of people in each village were selected to partake in the focus group discussions (FGD). One group for women only and another one group for men only as well as a group of mixed men and women. The FGD were done several times in each village according to the type of data required at different phases.

2.4 Data sources and types

The study employed primary and secondary data. The primary source was collected from the local people and district government officials responsible for forest matters (natural resources officers and Agriculture officers), village leaders (village leaders, village environmental committee), and district officials in the study area. Secondary data sources involved documentation from various related documents such as NGOs report, previous related studies and different government policies. The decision to use different sources of information was reached in order to increase the validity of the findings.

2.5 Data Collection

Different methods were used in primary data collection to gain an insight regarding local community's perception on CBFM. Such methods included participatory rural appraisals (PRA) such as key informant interviews (KIIs), FGD and participant observations (qualitative methods), and questionnaire surveys (quantitative methods). KIIs involved in-depth discussion with knowledgeable people who had important information pertaining to CBFM since its inception in the study area. Equally, FGD involved intensive discussions with local communities with different wealth status, age and gender

profiles. I decided to have separate interviews with a group of women and men only after discovering that women were not free to express themselves when mixed with men. In this regard, mixing women and men could lead to failure to capture women's views. The importance of women is attributed to their utilisation of forest resources as a source of energy for household consumption. Structured questionnaires were administered to the head of the households in order to obtain quantitative information which could be subjected to statistical analysis. Interview guides were used to garner qualitative information from key informants and FGD participants.

2.6 Data analysis and presentation

Both qualitative and quantitative techniques were used to analyse the data. Quantitative data from household survey were subjected to analysis using SPSS software to determine frequencies as well as cross tabulations of variables. Qualitative data from recorded interviews were transcribed, translated and then subjected to Atlas ti computer software for analysis. Atlas ti software was used to organize and analyse non-numerical or unstructured data then classify, sort and arrange the data to examine relationships.

3.0Results and Discussion

The main aim of the study was to analyse the perceptions of local communities over the performance of CBFM. Recently, CBFM has gained ground in Tanzania whereby local communities are fully integrated in the management of forest resources on their land. This approach is widely implemented in different villages in Tanzania due to the decline of government capacity in protecting its forests and woodlands. The first part of

this section presents the relevance of forest to local communities in the study area. The second part presents the opportunity flows after the inception of CBFM, and lastly, the section concludes by presenting the perceptions of the local communities on the performance of CBFM.

3.1 Importance of Community Forest to Local Communities

Forest resources had tremendous potential for rural community in the Kilindi District. This position is anchored on the fact that 43% of the respondents in Kwamwande and Balang'a Villages were of the opinion that firewood was the leading benefit obtained from forests. In both villages, firewood was widely used as a source of energy within the community. Findings depicted that for the past ten (10) years availability of firewood within the community was becoming a challenge. The main reason behind this challenge was due to increased forest deforestation and degradation. It was reported during FGD that community members had access to community forest that contributed to deforestation and degradation of forest resources. Increased incidences of deforestation within the village forest made the local communities to undertake collective forest management. This helped to curb incidences of deforestation amidst the local communities as everyone guarded village forests. As a result firewood within the village forest was increased. Cognizant of the fact that most unreserved forests in Tanzania are prone to increased deforestation and degradation due to free access to forest resources, it is important for village governments in those areas start to engage local communities in managing forest resources.

Furthermore, the findings revealed that 24% of the respondents were getting timbers from the community forest. Timber was

mainly used for construction activities within those villages. They explicitly acknowledged that the presence of community forests had reduced the burden of the community members who could be walking long distance in searching building materials. Since local communities in studied villages had started to manage the community forest collectively, therefore, harvest of timbers was warranted under special permit approved by Village Forest Committee (VFC). The VFC was established by the village government to ensure sustainable utilization of forest resources. According to the participants of FGD in both villages, the establishment of VFC had played great role to the management of village forest. This contributed much to the availability of timbers within the village forest because there was no unnecessary timber harvesting. A male focus group participant had the following to say about VFC:

Timber harvesting within the village forest is strictly forbidden, this has increased the availability of timber within the village forest. If anyone needs to fell a tree for timber, he or she must seek prior consent from village forest committee and only oldest trees can be felled. The penalties for breaking these rules depends on the size of the tree that was felled and range from planting new ten trees to paying fines equivalent to 15,000/= Tsh Per tree[101].

The above finding corresponds with Odera (2004) who argues that VFC in Tanzania enforces participatory forest protection measures whereby villagers who violate timber harvesting legislations are subjected into fines. The most significant benefit accrued from community forest included availability of indigenous medicine. This was vindicated by 10% of the

[101] FGD with male group in Balang'a Village

respondents who acknowledged that community forest played great role in improving community health as they ensured access to indigenous medicines. Most villagers in the study area reveled that they depend on local indigenous medicines found in the forests to cure different diseases. This is evidenced by the words of one participant in a female FGD:

In this village majority of the household still use local indigenous medicines to cure different diseases such malaria and diabetes. Large part of these local medicines is available within the village forest. It is unfortunate that most of the young generation do not have enough knowledge regarding local medicine. Only old population has this knowledge and they have been assisting people to get those medicines from community forest[102].

A small fraction (5%) of the respondents had the opinion that forest played great role in regulating local climate. The presence of forests in Balang'a was deemed vital in the functioning of the local natural systems. It was argued during FGD in Kwamwande Village that the forest was regulating the local weather through absorption and creation of rainfall and exchange of atmospheric gases. Therefore, conservation of forest resources in this village was of great relevant. As of necessity, most of the local communities in both villages were in front line to conserve the forest in order to evade drought condition, which befall due to the loss of forest vegetation cover mainly caused by deforestation. In one of the FGDs in Kwamwande Village, a 75 years old man had this to say on the role of forests in regulating local climate:

[102] FGD with mixed group of male and female participants in Kwamwande Village

In our society we understand the important role played by this village forest in modifying the local climate. Whilst, we are aware that increased forest deforestation and degradation triggers long drought season, which in turn, we may find our village turning into desert land. Basing on these facts, we are compelled to promote forest conservation that will attract more rains to our village[103].

About 6% of the respondents were of the view that forest resources were important for beekeeping. Through beekeeping local communities were able to conserve the forest that provided the perfect habitats for the bees. It was reported during the interview with Kwamwande Village Chairman that following deforestation and land degradation, beekeeping was carried out as a crucial sustainable and alternative source of income to communities living around the forests. Figure 1 presents the importance of forest to the community.

[103] FGD with male group in Kwamwande Village

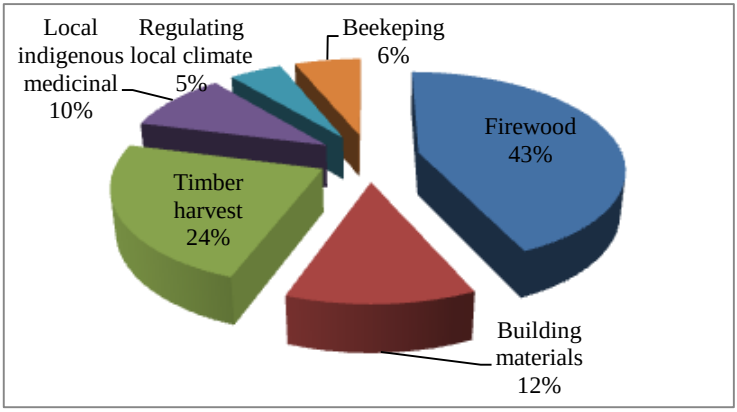

Figure 1: Importance of forest to the community

Source: *Fieldwork (2012)*

This study sought to investigate the level of accessibility to timber forest products (TFPs) and non-timber forest products (NTFPs) within the community. As noted above, access to forest products, particularly TFP was not allowed unless one had permit from the VFC to enhance sustainable utilization of forest resources. The KIIs pointed out that, access to forest products was governed by the by-laws ratified by Village Council alongside with VFC. This council was responsible for administrating and managing the village resources including forests. According to the information provided by one of the members of the Village Council, their major task was planning, implementing, and monitoring forest management activities. They were also ratifying by-laws to ensure the sustainability and equitable sharing of benefits by village managed forests. The governing by-laws had put in place several restrictions concerning the use of TFPs and NTFPs by the community.

Members of VFC reported that local communities were allowed to use NTFPs without seeking permission from either the Village Council or VFC. Some of the NTFPs of which local communities were allowed to use from the village forest include firewood collection; hunting; beekeeping; collection of mushrooms, edible fruits and Bamboo shoots. In case of collection of firewood local communities were only allowed to collect debris and deadwoods. Table 1 depicts the degree of community access to TFPs and NTFPs.

Table 1: Degree of accessibility to TFPs and NTFPs by the community

Items	Level of access	
	Prohibited	**Allowed**
Timber harvesting	✔	
Firewood		✔
Making charcoal	✔	
Tree logging	✔	
Hunting		✔
Grazing	✔	
Beekeeping		✔
Collection of NTFPs		✔

Source**:** *Fieldwork (2012)*

3.2 Opportunities after the Establishment of CBFM in Kilindi District

CBFM as indicated above constitutes a powerful paradigm that evolved out of the failure of the government forest governance to ensure sustainable forest management. This model has brought varying benefits to the local communities in the studied villages. Findings indicate that 72% of the respondents were of the opinion that village revenues had increased after implementation of the CBFM approach. Views of a member Village Council in a FGD substantiate this position:

Before the establishment of this approach, any member of this community could easily get access to village forest and harvest TFPs such as building poles, timber, and making charcoal. To great extent this contributed to huge loss of community revenues, since people were not paying anything. In the meantime, deforestation together with degradation of forests resources was increasing at alarming rate, due to lack of sustainable forest management. After the establishment this approach in this village, the revenues from village forest have increased. We have well established by-laws, which govern the use of TFPs. For those who want to harvest TFPs, they are supposed to seek permission from the VFC and pay the fee. This has increased the village revenues[104].

The increased village revenue attributed to CBFM has enhanced the village government ability in financing village projects like building of community secondary schools and dispensaries. Despite such increase on village revenues, still there are unwise village leaders who had been implicated in approving illegal

[104] Focus group discussion with local communities in Balang'a Village.

permits to business men who want to harvest TFPs from managed community forest. This apparently impedes the well job done by the Village Council and VFC in managing forest resources within the community.

Furthermore, the findings revealed that 66% of the respondents believed that the establishment of CBFM in managing community forest had promoted more beekeeping activities within the community. In recent years, beekeeping activities are widely carried out within the community as important source of livelihood. It was reported during the interview with one of the beekeepers in Kwamwande Village that, in the past this activity had suffered seriously with deforestation, due to charcoal making and clearing forest for cultivation. This caused bee stock to decline within the community, which in turn, caused few available stocks to become expensive for local communities. In the same vein the Chairman of this village noted:

Ten years ago beekeepers in this village travelled up to 7-10 kilometers to reach convenient forest plots where they could set their hives. After the establishment of CBFM, most of beekeepers cannot travel such long distance. They set their hives inside the community forest because the forest is well managed[105].

It was further reported by more than half (59%) of the respondents that in recent years there are increases of building materials with the community forest due to more tree regeneration. It was revealed during participant observation in one of the village forests in Kwamwande Village that, the forest had dense population of building poles. This increase was

[105] Key informant interview with Kwamwande Village Chairman

possible due to initiation of strict by-laws governing utilization of community forest. In this aspect, many illegal activities which had contributed to the decrease of tree poles with the community forest were easily controlled. In a related note, more than half (80%) of the respondents acknowledged that since CBFM was effected, there is tremendous increase of firewood in community forest compared to previous years. They argued that since when this approach was brought into effect most of the activities, which triggered forest deforestation and degradation, had been greatly controlled. Local communities have been integrated fully in the decision making process, hence illegal practice such as excessive deforestation due to timber logging were no longer existing. As the result there were increases of firewood within the village forest. Table 2 depicts perceived benefits after the establishment of CBFM in Balang'a and Kwamwande Villages.

Table 2: Opportunities after Inception of CBFM in Kilindi District

	Respondents' views		
Benefits	**Increased (%)**	**Decreased (%)**	**Don't know (%)**
Firewood	80	17	3
Village revenue	72	13	15
Building materials	59	30	11
Beekeeping activities	66	21	13

Source*: *Fieldwork (2012)

3.3 Local Perceptions on the Performance of CBFM Approach

The main aim of this study was to understand the perceptions of the local communities over the performance of CBFM since it was established in the study villages. The performance of CBFM in this study was analysed through five variables: forest management; coflict resoulution, forest governance, the status of forest boundaries, adhering to rules and regulations. Results are presented in table 3 below.

Table 3: Community Perceptions on the Performance of CBFM Approach

Perceptions	Respondents' views		
	Improved (%)	Not improved (%)	Don't know (%)
Forest management	69	24	7
Conflict resolution	85	15	0
Forest governance	91	3.5	5.5
Forest boundaries	84	10	6
Adhering to rules and regulations	73	7	20

***Source*:** *Field survey (2012)*

The findings revealed 69% of the respondents acknowledged that the CBFM approach has improved forest management through the involvement of local communities. Many of the participants during the focus group discussion depicted that before the establishment of CBFM, incidences of deforestation and degradation of forests were at the peak. Forests were susceptible mainly to recurrent charcoal making and agricultural expansion from surrounding communities. In recent years, the condition of forests has improved, as compared with the state-managed or open access forests. Local communities in the study area had been participating in land use decision making and they were satisfied with their involvement in forest management. For instance, one female participant in the mixed FGDs noted:

This village forest once upon a time was serious affected by human induced activities such as charcoal making. This activity degraded the village forest to great extent because the government failed to control unwise utilization of forest resources done by local communities. In controlling this situation, the village government decided to involve the community in managing the village forest. This approach has improved the forest management unlike it was before[106].

Furthermore, about 85% of the respondents were of the opinion that this approach had improved conflict resolution mechanisms amidst the interested stakeholders such as farmers, livestock keepers and forest authorities. It was noted during the KIIs with various people in Balang'a Village that different conflicts were resolved through Village Council. In case of any conflicts concerning the use of forest resources, Village Council through village reconciliation committees organized mediation meetings

[106] FGD with female group in Balang'a Village

to find the permanent solution of existing conflicts. The composition of village reconciliation committee was made up of wise men and women of the village. This finding coincides with the observation made by Kajembe et al. (2002), that conflicts resolutions mechanism over the forests resources in Duru-Haitemba were executed through village reconciliation committees, which were accepted by the formal village by-laws and were constituted through the involvement of village elders who were perceived to be more wise.

Conversely, 91% of the respondents applauded the way CBFM has improved forest governance. Participant noted that this approach has promoted transparency and accountability regarding utilization and conservation of village forest. This is vindicated by the decrease of illegal activities in the village forest. In executing good forest governance, participation of local community in decision making was highly accentuated by CBFM approach. Therefore, local communities were actively engaged in village meetings, which makes various crucial decision aligned to the designation of the village forest reserve and formulation various rules regarding forest use. Community participation in decision making promotes mutual understanding in the decision and makes local communities satisfied with ratified rules and regulation. Different observation was reported by FAO (2007) that the improvement of forest condition in the Mtanza Msona Village in Rufiji District was due to the inception of CBFM, which enhanced forest patrol and strict control applied by the villagers. Despite CBFM emphasize on community participation, the challenge was on the means of participation. It was reported by one members of Village Council in Kwamwande Village that some local communities were attending the meetings, but they didn't contribute anything.

Therefore, at the end of the meeting only the opinion given by Village Council members were ratified as village decisions. Similar observation was reported by (Kilemo et al. 2014) that some of people, especially women and few men, participate in important village meetings merely by attendance. They fail to voice their opinions over the issue under consideration.

Furthermore, 84% of the respondents appreciated the approach for being able to improve boundaries of community managed forest. This was crucial as local communities were aware of the boundaries of their managed forests, which were strictly prohibited by Village Council and VFC to undertake any human activities. This to some extent contributed much in improving the forest condition in both study villages. These finding concurs with Kajembe et al. (2002) in their study conducted in Duru-Haitemba Village, Babati District, it was revealed that local communities in those villages had secured boundaries, which provided them with power to take actions against anybody who tried to misuse the village forest. Therefore, Villagers in this village recognize that they live in a bounded local area, have clearly defined property rights over the resource and can undertake legal claims over that resource.

It was reported by 73% of the respondents that this approach has improved enabling environment for people to comply with relevant rules and regulation concerning management of village forest. It was revealed during the KIIs with Village Chairmen in both villages that the compliance of rules and regulations has reduced illegal activities, which in the past were serious damaging the community forest. In due regard, villagers have been devoting their time to safeguard the village forest reserve. It was noted during FGDs with local communities in Balang'a Village that some village members do not harvest any forest

product from the village forest because they know it is not allowed. Those who try to violate rules and regulation by trying to harvest any forest product without a consent from VFC, when caught and punished, they never do that again. The evidence from the findings indicated that at least many of the participants realized the relevance of rule compliance that it should be voluntary and not forced. This is because voluntary compliance is perceived by the local communities as a sign or maturity with high level of cognition that their local climate depends on community forest. A female participant in the same FGD observed:

It is good that community members are adhering to rules and regulations regarding conservation of village forest. There is high level of voluntary compliance since we all understand the advantage of conserving the village forest. If we fail to conserve our forest eventually our future climate will be in trouble because we will not get enough rains[107].

Despite the successes of this approach, free access of local communities to forest resources remains an issue. It is apparent though not directly noticeable that the government, particularly district council still has final control and supervision over the use of forest resources, including those forests found in areas that are already being managed by local communities. Astonishingly, there had been repeated interferences of the decisions made by Village Council and VFC regarding managed community forests, which affects the interests of local communities. This again affects the efforts of local communities and other interested stakeholders in supporting the implementation of CBFM at local level. Additionally, poor

[107] FGD with mixed male and female participants in Balang'a Village

understanding among the local communities concerning the relevance of this approach has contributed to the failure of CBFM. This has been observed in the study area whereby few participants were not aware with the benefits of this approach because they didn't see any incetive to manage forest resource. Those people emphasized more cultural value of the forest rather than environmental value because to them forest was important place for worship and other cultural activities. It should be noted that different policies and operational guidelines regarding management of forest resources, and other environment resources at local level, should be made while reflecting existing local situations and needs of the local communities.

4.0 Concluding Remarks

This article leads to the conclusion that empowering local communities in managing forest resources on their land has increased sense of ownership among local communities. This has induced the local communities in Kwamwande and Balang'a Villages to spend most of their time in conserving village forests. As the results the status of forests in these villages has been improving unlike it was before the initiation of CBFM. This is vindicated by the increase of tree regeneration and decrease of illegal activities in the village forests. This approach is cost effective due to the involvement of local communities in managing forest resources. Thus, it has helped much the government initiatives in managing forest resources, which attested failure in the past due to budgetary constraints and limited human resources. Overall, the article concludes that CBFM as a strategy was viable approach to ensure sustainable forest management at local level. Government and non-governmental organizations dealing with forest management

should be in place for effective mechanisms that will fully harness the potentials within the community in managing forest resources. Additionally, it would be even more effective if different stakeholders can be motivated to continue supporting CBFM initiatives at local level.

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