

Community Participation in Sustainable Forest Management: A Case of Nsieni Forest in Hai District, Tanzania

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Abstract: This study concerned community participation in sustainable forest management in Hai District, Tanzania. The study employed the cross-sectional research design. A representative sample of 200 respondents was drawn from the community members using the Rao soft sample size calculator formula to fill the questionnaire. Other methods of data collection included focus group discussions, interview and document analysis. Quantitative data was analyzed through descriptive statistics while qualitative data was analyzed through the content analysis approach. The study established that the most important community members' area of participation was implementation. Community members were somewhat dormant in terms of forest harvest, community meetings, benefit sharing, emergencies and individual initiatives. Additionally, they were never engaged in idea conception and planning. Among other recommendations, there is a need to create strong bonding social networks, meetings, groups or associations and village-wise campaigns to awaken the community members' participation in the sustainable management of forests.

Keywords: Community; Participation; Sustainable Forest Management; Nsieni Forest.

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Introduction

Sustainable Forest Management refers to the management regime that integrates and balances social, economic, ecological, cultural and spiritual needs of the present and future generations (United Nations, 1992). According to the United States Department of Agriculture- USDA (2000) sustainable forest management is a continued existence and use of forests to meet human physical, economic and social needs. It is the desire to preserve the health of forest ecosystems in perpetuity and the ethical choice of preserving options for future generations while meeting the needs of the present generation.

According to FAO (2016), forests and forest management have changed substantially over the past 25 years. Overall, this period has seen a series of positive developments in ensuring a sustainable forest management. Globally, forests have

continued declining as human populations continue to grow and demand for food increasingly raising up leading to the rate of net forest loss been cut by over fifty percent. So far, the attention made to sustainable forest management (SFM) has never increased among the community members. Although more land is designated as permanent, more assessment, monitoring, reporting, planning and stakeholders' involvement is taking place and legal framework for sustainable forest management are still challenging.

The idea of community participation in forest resources management is gaining some attention although much is not done in the field. Humans interact with their environment more often so as to make ends meet. Such human interactions with the environment can build or destroy it. If resources are dynamic and keep changing with time as human

continues to interact with the environment, it is very essential that in the management of such environmental resources and forest in particular, the community is not left behind (Fatima, 2008).

According to Petro et al. (2015), Tanzania has a total area covering about nine hundred and forty-five thousand kilometers (945 000km) of which 33.5% million hectares are forests and woodlands. About 13 million (13 000 000) hectares have been gazetted as forest reserves. The main forest types are the extensive Miombo woodlands in lowland areas across central and southern part of the country. In the northern regions, there are Acacia woodlands. In the coastal region, there is a forest woodland while in the east, Mangrove forests dominate along the Indian Ocean shoreline. In the Eastern Arc, there are closed canopy forests on the ancient mountains Kilimanjaro, Usambara and Pare. Of these different forest types, 14.3 million hectares are found within gazetted forest reserves, 2.5 million hectares are proposed as forest reserves and about 2 million hectares are in game reserves and/or national parks. The total area of forest plantation is estimated to be between one hundred and fifty thousand hectares made up of 85 thousand hectares of the state managed industrial plantations. It is estimated that there are about 40,000 hectares of private companies' industrial plantations and 80,000 to 140,000 hectares of village and farm plantations.

Smith (2010) contends that community participation is an important agenda in today's forest management and planning. The purpose of community participation is to ensure integration of all social, economic and environmental considerations in forest resources management and decision-making processes. Depending on the sector and jurisdiction, community participation takes the form of multi-party's management boards, roundtables, advisory committees, hearings, meetings campaigns, open houses and programs. These techniques either used singularly or in combination have almost doubled multi-stakeholder processes.

Currently, forest decline is a global phenomenon; it results from different actions caused by a number of agents. These may be individuals, groups of individuals or institutions that directly convert forested lands to other uses or that intervene in forests without necessarily causing deforestation but substantially reducing their productive capacity. Some of the agents for forests decline include,

among others, unsettled farmers, private and government logging companies, mining and oil as well as farming co-operations, forests concessionaires and ranchers. These agents clear forest lands or selectively exploit forests for agricultural expansion, subsistence, mining, timber products and fuel wood (Barang, 2000).

Idd (2011) pointed out that community participation in forest management has existed in Tanzania for a long period of time to date but on a small scale. It is common to find trees of certain species being protected and managed for traditional reasons. Small patches of forests are commonly retained by various tribes and are used as venues for traditional rituals such as initiations, prayers and fortune telling. Some of the regions in Tanzania in which trees and forests are traditionally protected are Kilimanjaro, Shinyanga, Tanga and Rukwa. As a result, it has been observed that forests and woodlands in many areas are managed by using traditional knowledge and practices which gives a high respect to forests by the concerned communities. But sometimes, for one reason or the other, community forests are affected by fire or unnecessary encroachment by the community members which threatens their sustainability.

Forests have been identified as one of the most important national assets. They have crucial services and products such as conserving biological diversity, water, soil and habitat for wildlife, air purification, timber, firewood, fruits, vegetables and fodder for livestock. Forests provide these services to individuals, communities and private sectors and in return, the government gets revenues. The rate at which natural forest resources are being exploited in recent years is unsustainable and it is beyond explanation. This is mainly caused by rapid population increase, increasing poverty levels, ignorance and poor policy enforcement (Kathia, 2014; Estomih, 2011).

Kilimanjaro Region covers an area of about 1.4% of the Tanzania mainland in which 16.5% are forest reserves, located mainly on high altitudes. Community members around the forests rely on it for biomass fuels of firewood, charcoal, agricultural residues and biogas for domestic heating and cooking. However, wood fuel accounts for about 95% of the total energy consumed in the region. Wood fuel is mainly used for cooking, water heating and house heating. Households are the most important category in wood energy consumption

while the second highest consumer of wood fuel are the cottage industries which include break making, tobacco curing, fish smoking and bakeries (Amoakoh, 2017; Petro et al. 2015).

Community participation plays a vital role in addressing drivers of deforestation and forest degradation such as agricultural expansion and unsustainable harvesting of forest resources for commercial activities. Several countries have taken into consideration the importance of participatory management of land and forest resources (World Bank, 2014). Ten years ago, Nsieni forest in Masama East Ward in Kilimanjaro Region was a forested area with wide varieties of plant species as well as animal species. The area was greener and helpful for the surrounding community in social and economic gains but recently, ongoing human activities have impacted these forested areas of land. Due to this situation, questions arise to whether communities are well informed in forest management or community lacks knowledge concerning how best to make use and manage forest resources. This called upon this study to find out whether community members participate in the management of forests to ensure its sustainability and to identify areas or ways on how community members, government and other stakeholders can be involved in all processes and practices related to forest management for sustainable development.

Methodology

Design

This study employed the cross-sectional research design. This design was chosen due to its usefulness and suitability as it enabled data collection from different groups of people. The design also gave room for making comparisons among different views from different respondents to see how the dependent variable relates with the independent variables. It further ensured high degree of precision, reliability and validity on the data collected and at the same time, it served time and other resources required to accomplish the task.

Population and Sampling

The study was conducted at Nsieni in Ngira Village, Masama East Ward in Hai District, Kilimanjaro Region in Tanzania. Nsieni forest is bordered by river Marire in the eastern side and river Namwi in the western side. The area was chosen because over the years, this forest has been serving the community members for pastures, firewood, building materials, recreational and medicinal purposes. Unfortunately,

currently the forest has been intensively and extensively destructed mainly due to high demand for forest related products. These are among the reasons which necessitated this study to be undertaken in this area. A sample size for this study was drawn from the community members at Ngira Village, comprising respondents of different sex, age, marital status, occupation, educational level and economic status. Based on this scenario, a representative sample of 200 respondents was considered. The required sample size was obtained using Rao soft sample size calculator formula. Key informants included forest officer and village leaders who were obtained purposively.

Instruments

Qualitative and quantitative data were collected from primary and secondary sources. Data collection methods in this study included a household survey by using questionnaire, documentary review and focus group discussions with participants ranging from 7 to 10 members that included men and women of different age groups, marital status, education and socio-economic status. Apart from the focus group discussion, a survey using a questionnaire was conducted. Both structured and semi-structured interviews were also used in order to capture a wider spectrum of understanding among the respondents. Lastly, documentary review was applied during data collection in order to capture the information that could not be obtained otherwise.

Validity and Reliability

Validity is concerned with whether the findings are really of what appear to be about while reliability refers to the extent to which data collection techniques and analysis procedures yield consistent findings (Saunders et al., 2009 & Kothari, 2004). In this study, the reliability of the data was obtained through methodological triangulation in data collection. The data collection process used a number of methods including interviews, documentary reviews, focused group discussions and a questionnaire. These methods improved the reliability of the data as the flaws of one method could be recovered by another method.

Statistical Treatment of Data

Quantitative data was analyzed through descriptive statistics in terms of mean scores and standard deviations. Interpretation of mean scores was done using the following scale: 4.50-5.0= strongly agree, 3.50-4.49 = agree, = 2.50-3.49 = moderate, 1.50-

2.49 = disagree and 1.00-1.49 = strongly disagree. Qualitative data was analyzed through the content analysis approach.

Ethical Considerations

With regard to ethical considerations, the researcher requested permission at all levels and individuals who participated in this study including the Kilimanjaro Region, Hai District and Masama East Ward where Nsieni forest is located. In addition, the consent of all participants who took part in the study was sought in advance. Participants were explained about the essence of the study and were assured of confidentiality on the information

which they provided and finally, they were told that they were free to exit at point in time.

Results and Discussion

This section presents findings of the study. It starts with the presentation of social-demographic characteristics of respondents and then the analysis of results.

Socio-Demographics of Respondents

This section presents the socio-demographic characteristics of respondents by focusing on the age, sex, education level, marital status and employment type as appears in Table 1.

Table 1: Socio-demographic Characteristics of the Respondents

Variable	Category	f (n=200)	Percent (%)
Sex	Male	102	51%
	Female	98	49%
Age group	18 – 35 years	90	45%
	35 – 50 years	68	34%
	Above 50 years	42	21%
Marital status	Single	66	33%
	Married	128	64%
	Separated	6	3%
Education level	Primary level	164	82%
	Secondary level	24	12%
	University level	07	3.5%
	Others	05	2.5%
Employment type	Peasant farmer	140	70%
	Salaried employment	10	5%
	Small business	25	12.5%
	Unclassified	25	12.5%

In Table 1, findings indicated that 51% of the respondents were females while 49% were males. Both men and women depend on the available forest resource as the main source of energy for cooking and house building. In this perspective, it was worth to understand the role and importance of female inclusion in forest management since they are concerned with forest management in enhancing its sustainability for future use. Men have also direct or indirect participation in enhancing the sustainable forest management as they use the forest to get building material and other related forest products.

The findings further show that 45% of respondents were between 18 and 35 years, followed by the age range from 35 to 50 years which constituted about 34% of the respondents. Moreover, community members with 51+ years represented 21.5% of the respondents. It is important to unveil that 18 to 35 years people are energetic and are able to preserve and use forest resources than any other age

category. But despite of having enough manpower who can sustainably managed the community forest, the story was different during the focus group discussion with the community members that “In our village, we are gifted by God to have enough manpower for different activities....but to a great surprise, majority of them are drunkard, irresponsible, working as casual laborers and therefore hardly to organize them towards sustainable forest management.....” Discussants, Ngira Village, 20/06/2022.

Regarding marital status, 33% of the respondents were single while 64% were married and 3% of all respondents were separated. This indicates that most of the respondents were married. In fact, under normal circumstances, this is the category which is more involved in case of forest resources depletion. According to Karith (2015), women are the main users of forest resources and are the first causative of environment degradation as they are

the ones who deal with the natural resources regularly.

Furthermore, the findings show that, 82% of all respondents possessed primary level education, 12% possessed secondary level of education while 3.5% possessed University level of education and only 2.5% of the respondents had no formal education. This means that the majority of Nsieni community members were characterized by primary level of education.

People with lesser education do not bother much about the forest management and at the same time do not engage much in advocating for better and friendly approaches that will enhance sustainable forest management mainly due to their impoverished socio-economic conditions (Wilson, et al., 2020). The above findings were also concretized by discussants during a focus group discussion that:

.....in our village, majority of us are with low level of education....but to make the story worse, we are not employed and therefore, we are naturally compelled by

our socio-economic condition to depend fully on our forest (Nsieni Forest). There had been a lot of orders aiming stopping us from destroying the forest but in actual sense, it has been so hard for us to implement/adopt. Due to our low level of education, we do not have alternative survival strategy.....” Discussants, Ngira Village, 23/06/2022.

Levels of community participation

Nine items were included in the questionnaire in order to determine the extent of community participation in the sustainable forest management. These items were subjected to descriptive statistics, where the mean and standard deviations were calculated to indicate the degree of community member's participation in the sustainable forest management. Interpretation of mean scores was done using the following scale: 4.50-5.0= strongly agree, 3.50-4.49 = agree, = 2.50-3.49 = moderate, 1.50-2.49 = disagree and 1.00-1.49 = strongly disagree.

Table 2: Levels of Community Participation in Sustainable Forest Management

Variables	Mean	Std. Deviation	Interpretation
Implementation	4.86	0.348	Strongly Agree
Forest harvest	3.48	1.295	Moderate
Community meeting	3.32	0.950	Moderate
Benefit sharing	3.12	1.220	Moderate
Emergencies	2.98	0.485	Moderate
Forest preservation	2.61	0.488	Moderate
Individual initiatives	1.59	0.983	Disagree
Idea conception	1.40	0.492	Strongly Disagree
Planning	1.15	0.358	Strongly Disagree

As it can be depicted in Table 2, the most important community members' level of participation on sustainable forest management was "implementation" with the mean score of 4.86 and a Std. deviation of 0.348. "Forest harvest" with a mean score of 3.48 and a Std. deviation of 1.295 is the second most important level, followed by "community meetings" with a mean score of 3.32 and a Std. deviation of 0.950. "Benefit sharing" had the mean score of 3.12 and the Std. deviation of 1.220 while "emergencies" had the mean score of 2.98 and the Std. deviation of 0.485. "Forest preservation" had the mean score of 2.61 and the Std. deviation of 0.488 while "individual initiatives" had the mean score of 1.59 and the Std. deviation of 0.983. Furthermore, "idea conception" had the

mean score of 1.40 and a Std. deviation of 0.492 and "planning" had the mean score of 1.15 and the Std. deviation of 0.358.

It is important to note that respondents strongly agreed with only the first item in the questionnaire. They were moderate about the next five items and they strongly disagreed with the last two items in the table. The same result was noted during documentary review that among other levels, implementation is considered to be the most significant one (Ngira Village Annual Report, 2021). This suggests that implementation was the most significant role played by community members. Community members were somewhat dormant in terms of most items in the table to which they were moderate and they actually did not participate in

ideal conception and planning. This concurs with the finding of Wilson et al., (2020) that in the community, some members do not participate in idea development or planning process which then endanger the sustainability in forest management.

Conclusions and Recommendations

The study concludes that the most important community members' area of participation was implementation. This is the only aspect to which members were actively engaged in an attempt to ensure sustainable forest management. Community members were somewhat dormant in terms of forest harvest, community meetings, benefit sharing, emergencies, forest preservation and individual initiatives. Additionally, they were never engaged in idea conception and planning. Community participation was limited and therefore much has to be done to inspire members' active participation in the sustainable management of forests.

There is a need to create strong bonding social networks, meetings, groups or associations and village-wise campaigns to awaken the community members' participation in the sustainable management of forests. Furthermore, village and Local Government Authorities should lay down strategies which could enable effective community members' participation.

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