Use of Participatory Forest Management as a Strategy for Sustainability of Kazimzumbwi and Pugu Forest Reserves, Tanzania

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Abstract

This study investigated the strategies for improving access to and use of information for forest management with particular reference to Kazimzumbwi and Pugu forest reserves in Coast Region located in the Pugu Hills area, about 20 km south-west of Dar es Salaam, in Tanzania. The review of literature and preliminary findings indicate that the majority of the people in developing countries, especially in rural areas depend on forests for multiple purposes such as construction materials, medicine, fodder, fuel wood, and domestic utensils. Moreover, the levels of forest degradation and deforestation are on the increase due to population pressure on forest resources, economic activities and climate change which are major challenges threatening forest resources. The findings also indicate that the Tanzania government recognises Participatory Forest Management (PFM) as a right strategy for effective forest management and sustainable forest use. Although PFM plays a central role in Tanzania's forest laws and policies, there is still a high rate of deforestation and forest degradation resulting in the reduction of forests to almost a half of the forests because of illegal activities. This could, to some extent, be attributed to rural communities' inadequate access to and use of information for forest management. Since it is acknowledged that access to and use of information is critical in forest management it is recommended that the flow of information be closely monitored to minimise any obstructions. Secondly, the information communicated should be repackaged for ease of access and use by the majority of people, especially the targeted group in rural areas, who cannot understand scientific information. Thirdly, since general mass media, groups such as youth and women, awareness campaigns, and involvement in civil society activities are the real information transmission belts in communities, which bring immediate positive impacts, they should be effectively used by forest agencies.

Key Words: Participatory Forest Management, Access to Information, Kazimzumbwi Forest Reserve, Pugu Forest Reserve, Tanzania

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Introduction

Forests serve multiple purposes. People use them as construction materials, medicine, fodder, fuel wood, and domestic utensils especially in the rural areas of developing countries (Ramadhani, 2010). Forests and forest products also provide shade, serve as wind breakers, and act as habitats for different species, in addition to improving productivity in agriculture by enriching soil and protecting water sources by providing shade (Nathan, Lund, & Theilade, 2007). The Centre for International Forestry Research [CIFOR] (2012) found that 24 percent of the income of communities living adjacent to and around forests is derived from forest products. However, the levels of forest degradation and deforestation are on the increase due to population pressure on forest resources, economic activities and climate change which are major challenges threatening forest resources. According to Blomley and Iddi (2009), Tanzania Mainland has 35.3 million hectares of forest occupying 39.9 percent of the total area. The main types of forests are miombo woodland in the central parts of the country, acacia woodland in northern regions, coastal forests in the eastern regions and mangrove forests along the coastal regions that face drastic deforestation and forest degradation.

Overview of Participatory Forest Management

The idea of participatory forest management came into practice in the world following the high rate of forest degradation and deforestation in the early 1990s. This approach anticipated to ensure sustainable forest management by involving a large number of stakeholders with different interests, knowledge, expectations and rights (Sumbi, 2004). Before the 1990s, the majority of countries in the world had relied on the centralisation approach whereby, the central government managed forests without involving local communities. As a result, forests were under high pressure of deforestation and forest degradation. In response to this challenge, the Rio de Janeiro summit was held in 1992. At the summit, a number of agreements were reached, including the adoption of a comprehensive statement of forest principles on sustainable forest management worldwide; Agenda 21, which entails a comprehensive programme of global action in all areas regarding sustainable development; and the Rio Declaration on environmental development that define roles and responsibilities of every state (Himberg *et al*., 2009). The Rio de Janeiro summit, which is also known as the UN Conference on Environment and Development (UNCED), was held with the goal of addressing various environmental issues such as the protection of forests and natural resources, and conservation of biological diversity; and management of wastes and technology.

Subsequently, after Rio de Janeiro agreements, countries started to change the forest management approach by introducing participatory forest management that directly involves local communities in forest management (Himberg *et al*., 2009). Yet the challenges of forest deforestation and degradation in many areas continue unabated as various studies reveal (Maguire, 2010; Ospina *et al.*, 2012).

Relationship between PFM and Access to and Use of Information

PMF and access to and use of information are intertwined. Effective involvement in forest management requires one to be informed and to be informed one has to first get information, be able to use it, be knowledgeable and ultimately increase the participation of stakeholders in forest management activities (Ospina *et al.*, 2012) thereby improving the ability of individuals to make informed decisions. Understanding the roles and responsibilities of stakeholders in forest

management activities creates self-motivation and willingness of the community to participate in any activity related to forest management. The assumption here is that informed decision would impact on one positively as an individual and as a community member as a whole for the betterment of the community.

Access to and Use of Information for Forest Management

FAO (2012) argues that, information for forest management is useful in societies as it detects uncertain changes of significant importance in forest management. Accordingly, negative changes brought by climate change, human activities, and natural disturbances in the forests are easily detected with effective monitoring of forest information and timely availability, accessibility and usability of information in communities. Dennis-Perez and Kuhns (2012) observe that information can create awareness and induce positive achievements in forest planning, management and identification of available opportunities and resources for sustainable forest utilisation. However, Isager *et al*. (2002) state that the problem of decreasing forests is directly linked to inadequate information reaching communities living around forests in rural areas. Information is used for integrated forest planning by creating awareness and acting as a tool for spatial planning in forestry. Hiltunen (2012) points out that the availability of information to support the decision-making process for forest planning is essential in attaining the best results in forest management. Furthermore, the government and international agencies are responsible for producing and disseminating information to households, communities and regions, nationally and internationally. Hallegate *et al*. (2011) argue that local communities have inadequate information for forest management also contributes significantly to deforestation and forest degradation in Tanzania.

Access to and Use of Information Using Participatory Forest Management in Tanzania

Tanzania remains one of the frontline countries when it comes to practising participatory forest management. The dissemination of information on this approach started in the early 1990s in Tanzania after conducting pilot studies in Babati and Singida districts and then rolling out to other forest reserves (Sumbi, 2004). This approach was aimed to rescue forest resources. Iddi *et al.* (2011) observe that the major problem in Tanzania forest management is not forest degradation and deforestation but the human lack of concern, which is partly attributable to inadequate information, communication, education and rising public awareness in communities living adjacent to and around forest reserves. To address this challenge, communities were encouraged to share information and participate in forest management and conservation by introducing different programmes and campaigns such as participatory forest management, community-based forest management and joint forest management in the early 1990s. During the campaigns, it was discovered that there was low communication of extension information. Blomley *et al*. (2008) demonstrate that introducing participatory forest management has had a positive impact in Tanzania since forest changes occurred in forest managed under both joint and community-based forest management. They observed the increase in volume and basal area in the 13 sampled forests after introduction of participatory forest management in those areas.

Although these data came from different areas in Tanzania, the evidence shows that there is a general improvement in the forest resources managed under participatory forest management compared to those singly managed by the government.

Sources Consulted for Information on Forest Management

Sustainable forest management is dependent on the provision of information from different sources including traditional and modern sources.

Sources of Traditional Information and Knowledge for Forest Management

Local communities have information, knowledge and practices for forest management. Himberg *et al*. (2009) observed that communities have traditional information, knowledge, skills and practices, which aim at sustainable forest management. These include information and knowledge on indigenous trees and plants used for traditional herbs, medicine and conservation of clean water catchment areas. Rist *et al*. (2010) argue that local communities are the source of information about species, ecosystem and practices held by local people living adjacent to and around forest reserves for a long time. This information is embedded in traditional knowledge and is very cheap and potential for solving specific management issues such as the prevalence of forest infections, fire control and conservation of water catchment areas compared to scientific information, which needs investigation. Lertzman (2010) observes that local communities have been using traditional ecological knowledge for sustainable forest management before the introduction of scientific knowledge. The study found that traditional ecological knowledge is valid and has authoritative cultural tradition and is the property of the communities that are major stakeholders in forest management. Thus, traditional ecological knowledge compliments scientific knowledge in forest management. Moreover, Tanyanyiwa and Chikwanha (2011) underscore the need for scientists to understand and recognise the value of indigenous knowledge that has been used in managing forests for generations regarding sustainable use of these resources.

Sources of Modern Information and Knowledge for Forest Management

Modern sources of information frequently consulted by communities in accessing information for forest management are posters, newsletters, brochures and booklets (Iddi, Mpokigwa, & Sangeda, 2011). Communities consult posters, newsletters and brochure as sources of information because of the illustrations used in communicating information since the visual appearance attracts both the illiterates and literates. Apart from these sources of information, there are seminars, cinema or video shows, newspapers, radio, and extension services that serve as other sources of information in rural areas for acquiring information on forest management. Baral (2004) identifies the Geographical Information System (GIS) as the source of information for community-based forest management to ensure sustainable forest management. Community groups can use GIS maps to create databases and identify different land uses, understand forest characteristics and recognise biodiversity and water catchment areas.

Local Communities' Access to and Use of Information for Forest Management

Maguire (2010) asserts that sustainable forest management takes into account forest resources management by competing anthropocentric, economic, ecological and social values assigned to the forest areas. Guiang, Borlagdan and Pulhin (2001) argue that forest sustainability needs up-to-date information in a given area to continue providing, supporting and maintaining environmental goods for a long period. This situation is more applicable when there is decentralisation of power in forest management and empowerment of local communities through capacity-building that are clearly linked to easy access to information on resource use rights.

Duthy and Bolo-Duthy (2003) observe that communities should integrate new approaches of sustainable forest management such as community-based forest management and joint forest management with three core objectives: equal opportunity of access to forest resources and information, poverty alleviation, and sustainable management of forest assets.

Strategies used for Accessing Information on Forest Management

Strategies currently used for accessing information include village meetings, posters, and extension services provided by agricultural officers. Wurster (2010) demonstrates that inadequate information on forest management to local communities could lead to the destruction of forest resources. The situation would lead to high forest degradation and deforestation of forest resources. In fact, if the government does not believe in improving strategies for accessibility and utilisation of forestry information in local areas, little will change in forest management. Ahmed (2008) notes that communities face problems in sustaining forest management. One of these problems has to do with strategies used for making information accessible for drawing comprehensive management plans, understanding the status, growth and yield of forests and information on annual allowance cuts. Nevertheless, Savage (2009) observes that planning for forest management is strongly dependent on accessibility of information from different sources, which flow at the three levels of planning: strategic, tactical and operational planning. Additionally, information goes hand-in-hand with the decision-making process, in informing the planning at the three salient levels and in guiding the interactive processes.

Communicating Forest Information

Communication and flow of forest information among societies and forest stakeholders is crucial in forest management and conservation. The information so communicated should be simple and easy to understand for the majority of the people, especially the targeted group who cannot understand scientific information in rural areas (Janse, 2008). In this regard, the government of Kosovo noted that there is need of communicating forest information, increasing awareness and enhancing current capacity in the forest sector. Journalists, teachers and NGOs have limited knowledge on forest and environment in general since they are not specialised enough in environment and forest to provide a permanent flow of information to communities around forest reserves (Government of Kossovo, 2013). Indeed, the general mass media, groups such as youth and women, awareness campaigns, and the involvement in civil society activities are the real information transmission belt in communities, which tend to bring about immediate positive impacts in forest management. Moreover, transparency from forest agencies in communicating information to communities and other stakeholders around forest reserves should consider technological advancement in communication. Communicating Technologies in global environment, which include mobile phones, the internet, email and social networks, broadcast media websites can serve as strategic forest communication (Castrén & Madhavi, 2015).

Challenges to Accessing Information for Forest Management

Himberg *et al*. (2009) contend that participatory forest management needs adequate efforts to conserve forests for ecological, social and economic benefits to maintain its stability. However, communities face numerous shortcomings such as inadequate access to up-to-date information for forest management and legal rights that lead to inactive participation in forest management activities. Other limitations include poor conservation tools, inadequate knowledge, shortage of

management funds and fast growing population that depend on forest resources (Himberg *et al.*, (2009). Despite community organisation efforts in forest management, information on farmer training, capacity building, financial management, field level technical forest and organizational management are still relatively inadequate in forest management areas (Guiang, Borlagdan, & Pulhin (2001). As such, communities need the right policies for effective forest management and dissemination of information on resource use rights.

Use of Participatory Forest Management in Tanzania

Generally, the Tanzania government recognises Participatory Forest Management (PFM) as a right strategy for effective forest management and sustainable forest use after finding the centralised approach it had been embracing for years to have detrimental impacts on forests. PFM plays a central role in Tanzania's forest laws and policies and it was initiated in the country since 1990s (United Republic of Tanzania [URT], 2008; Blomley *et al*., 2008). Since then governmental and non-governmental organisations (NGOs) have been actively involved in educating and promoting communities on the importance of PFM in Tanzania. PFM is undertaken in a wide range of forest types in Tanzania such as National Forest Reserves (NFRs), Local Authority Forest Reserves (LAFR) and Private Forest Reserves (PFR). In addition, the Tanzania government started to support villages to establish forest reserves in the village areas (URT, 2008). Despite PFM initiatives having been launched in the 1990s, Tanzania continues losing more than 420,000 hectares of its forests per year through deforestation and forest degradation (Lupala, 2009, p.7).This situation is associated with many factors such as limited access to information or/and its underutilisation by communities living adjacent to and around forest reserves (Ospina *et al.*, 2012).

Role of Participatory Forest Management in Kazimzumbwi and Pugu Forest Reserves

Kazimzumbwi and Pugu forest reserves in are in Kisarawe district, Coastal region in Tanzania. The two areas are close to information centres and the head office (Forest and Bee Division office) in Dar es Salaam city, some 20 kilometres away (Joseph, 2014). Although Kazimzumbwi and Pugu forest reserves are beneficiaries of PFM (and in addition the nearest city, Dar es Salaam is a hub of information), the rate of forest degradation and deforestation remains high. This implies that strategies used for accessing and using information (access to and use of information was found elsewhere as among of very important factor in managing forests) need improvement to address inconsistency. As Zahabu (2008) argues, information can shed light on participatory forest management in Tanzania by helping local communities in decision-making and supervision of all activities related to forest management.

Regardless of being near information centres and the Ministry of Natural Resources and Tourism, Pugu and Kazimzumbwi forest reserves (PKFs) are remnants of the oldest forests in the world. They also belong to the unique East African coastal forests (Mhache, 2014). Moreover, the trend of deforestation and forest degradation is high in the PKFs in relation to other coastal forest reserves (Kahyarara, Mbowe, & Kimweri, 2002). Kishaigili *et al*. (2013, pp. 4-5) observed that during the 1980-1995 period, Kazimzumbwi Forest Reserve (KFR) decreased by 635.5 hectares (11.9%) whereas for the period between 1995 and 2010 it decreased by 1674.9 hectares (31.3%). Between 1980 and 1995 Pugu Forest Reserve (PFR) decreased by 109.2 hectares (4.5%) and 611.1 hectares (25.3%) for the 1990- 2010 period. These reserves are also part of the Dar es Salaam greenbelt, which offers services to citizens such as clean air, water, soil protection

and recreation. Being close to Dar es Salaam City (the hub of information and availability of alternative sources of energy that could strategically be used to curb the ever increasing demand for fuel wood) one would have expected better forest management in these forest reserves. Thus it is important to know why this is not the case.

Conclusion

The importance of participatory forest management, challenges encountered in participatory and joint forest management approaches in Tanzania have been discussed in a number of studies. The high rate of deforestation and forest degradation has almost halved the forest cover mainly due to illegal activities in Tanzania, which to some extent is attributable to inadequate access to and use of information for forest management. After all, information constitutes an important resource for the development in any country. However, the extent to which access and use of information for forest and agricultural management by rural communities is not clearly demonstrated. This implies that there is poor transfer and use of information and knowledge by forest stakeholders in rural areas to meet the information needs required in effective forest management. Inadequate access to and use of information leads to the poor formulation and implementation of active sustainable forest management plans, strategies, and conflict over forest resources use.

Recommendations

Since it is acknowledged that access to and use of information is critical in forest management, it is recommended that the flow of information be closely monitored to minimise any obstructions. Communicated information should be simple and easy to understand for the majority of the people, especially the targeted group (in rural areas) who cannot understand scientific information. Secondly, since general mass media, groups such as youth and women, and awareness campaigns are the real information transmission belts in communities, they should be effectively used by forest agencies for positive impacts. Forest agencies should consider taking advantage of technological advancement in communication (mobile phones, internet, emails and social networks, broadcast media websites) when developing communication strategies.

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