

**PARTICIPATION OF LOCAL COMMUNITIES IN COMMUNITY BASED
FOREST MANAGEMENT IN TANZANIA: A CASE OF TUNDURU DISTRICT,
RUVUMA REGION**

**FOR REFERENCE
ONLY**

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**A THESIS SUBMITTED IN THE FULFILMENT OF THE REQUIREMENTS FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY OF SOKOINE UNIVERSITY OF
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EXTENDED ABSTRACT

The Participatory Forest management (PFM) in Tanzania entails Community Based Forest Management (CBFM) and Joint Forest Management (JFM). The centrepiece of the PFM is participation of the local communities. The study focused on the CBFM with the aim of providing a better understanding of local communities' participation in the CBFM process of establishing Village Land Forest Reserves (VLFRs) and the implementation of the Forest Management Plan (FMP). The study was conducted in five villages of Tunduru District, Ruvuma Region in Southern Tanzania and had four specific objectives. These were: 1) assessing the level of participation of the local community during the CBFM process of establishing the VLFRs; 2) examining political underpinnings in the participation of the local communities during the CBFM process of establishing the VLFR; 3) evaluating trainings provided by professional foresters to members of Village Natural Resources Committee (VNRCs) during the establishment of the VLFRs; and 4) assessing how local community participate in the implementation of FMP and whether their management practices comply with *de jure* FMP prescriptions and why. Data collection involved household surveys, participant observations for six months, participatory rural appraisal, in-depth interviews to local and external actors involved in the CBFM process, and a review of grey and published literatures. The result indicated that ten different stakeholders participated in the CBFM processes to establish VLFRs in Machemba and Sautimoja villages. The identified stakeholders include government departments/institutions, Non-Governmental Organizations (NGOs), and local communities - people who live in the registered villages. The agenda behind the VLFRs establishment emanated from external stakeholders who are interested in conservation and had never reached the point where the local communities had control over the process. The study revealed further the presence of multiple external stakeholders who compete over authority to claim and set aside village land as a wildlife management area or as a forest reserve in the village land. This was

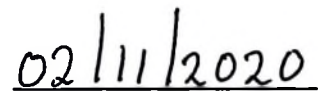
observed in Machemba Village where since 2007 there were different donor funded projects to reserve the village land, which created conflicts among villagers themselves, and sometimes with those from outside the village. This is because of the fact that there was no broad-based dialogue about and acceptance of the idea of conserving village forest (Chiumbe Forest). Furthermore, the study found that the preparation of forest management plans is a technical activity, which is beyond general knowledge of local communities. Therefore, VNRC members were trained to acquire necessary skills and knowledge on how to carry out forest inventory and to prepare the FMP. However, the training was carried for half a day, which is considered too short to make a meaningful contribution and aimed to impart trainees skills to do manual work. The provided training was limited to how to measure tree circumference (manual work), which aimed at making planning process cheap. None of the committee member was capable to plan forest inventory, use Global Positioning System (GPS), analyze inventory data and estimate sustained yield. The study also shows that professional foresters with little emphasis on local knowledge, practices, and livelihoods prepared FMPs. Forest management prescriptions were rooted in forest science, conservation laws, administrative circulars, decrees, and guidelines; therefore, they (plans) had little relevance to the local community, and such plans were followed partially as they were in conflict with the local context. The study recommend for the revision of the forest regulations and CBFM guidelines in order to provide local communities with more voice, independence, and freedom and allow the inclusion of local knowledge and practices, as well as exploring different sources of revenues to finance forest management activities.

DECLARATION

I, Numan S. Amanzi do hereby declare to the Senate of Sokoine University of Agriculture that, this dissertation is my own original work and that it has neither been submitted nor concurrently being submitted in any other institution.



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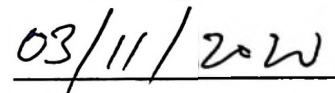


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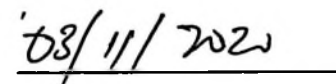
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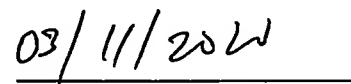
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LIST OF ABBREVIATIONS AND ACRONYMS

AA	Authorized Association
AAC	Annual Allowable Cut
CBC	Community Based Conservation
CBFM	Community Based Forest Management
CBH	Circumference at Breast Height
CBO	Community-Based Organization
CBWM	Community-Based Wildlife Management
CCM	Chama Cha Mapinduzi
CF	Community Forestry
CFM	Centralized Forest Management
CFR	Community Forest Reserves
CUF	Civic United Front
DED	District executive Director
DFM	District Forest Manager
DFO	District Forest Officer
DLNRO	District Land and Natural Resource Officer
DPLUM	District Participatory Land-Use Management
FBD	Forestry and Beekeeping Division
FGD	Focus Group Discussion
FMP	Forest Management Plan
FTI	Forestry Training Institute
GEF	Global Environment Facility
GIS	Geographic Information System
GPS	Global Positioning System
GTZ	German Technical Cooperation Agency

Ha	Hectare
IDA	International Development Association
IZW	Berlin Institute for Zoo and Wildlife Research
JFM	Joint Forest Management
JFMA	Joint Forest Management Agreement
LAFR	Local Authority Forest Reserve
LUMC	Land Use Management Committee
MBOMIPA	Matumizi Bora ya Malihai Idodi na Pawaga Wildlife Management Area
MCDIV V	Mpingo Conservation and Development Initiative
MJUMITA	Mtandao wa Jamii wa Usimamizi Misitu Tanzania (Tanzania Community Forest Network)
MLCH	Minimum Legal Circumference for Harvesting
MNRT	Ministry of Natural Resources and Tourism
NFR	National Forest Reserves
NGO	Non-Government Organizations
NGR	Niassa Game Reserve
PF	Private Forests
PFCA	Participatory Forest Carbon Assessment
PFIA	Participatory Forest Inventory and Analysis
PFM	Participatory Forest Management
PFRA	Participatory Forest Resources Assessment
PRA	Participatory Rural Appraisal
PVLUP	Participatory Village Land use Planning
REDD	Reducing Emissions from Deforestation and forest Degradation
RLP	Ruvuma Landscape Programme

SGR	Selous Game Reserve
SNWC	Selous - Niassa Wildlife Corridor
SNWCP	Selous-Niassa Wildlife Corridor Project
SPSS	Statistical Package for Social Sciences
SUA	Sokoine University of Agriculture
TANAPA	Tanzania National Parks Authority
TASAF	Tanzania Social Action Fund
TAWIRI	Tanzania Wildlife Research Institute
TDC	Tunduru District Council
TFS	Tanzania Forest Service
TZS	Tanzanian Shilling
UNDP	United Nations Development Programme
URT	United Republic of Tanzania
USAID	United States Agency for International Development
USD	United States Dollar
VA	Village Assembly
VEO	Village Executive Officer
VFMA	Village Forest Management Areas
VLFR	Village Land Forest Reserve
VNRC	Village Natural Resource Committee
WCST	Wildlife Conservation Society of Tanzania
WEO	Ward Executive Officer
WMA	Wildlife Management Area
WWF	World Wide Fund for Nature

CHAPTER ONE

1.0 GENERAL INTRODUCTION

1.1 Overview of Forest Management

Before coming of colonialists in Tanganyika, German (1884 – 1916) and British (1919 – 1960), forests were managed through customary governance and regulatory systems based on traditional knowledge and belief systems (Neumann, 1997). At that time, forests were mainly used for worship and exploitation of basic needs such as shelter, clothing and food (e.g. edible fruits, roots, tubers, nuts, honey and vegetables) (Charnley and Poe, 2007). To protect forests in most important areas such as water sources, local rulers established customary governance and regulatory systems that defined who allowed to access, use and manage resources on behalf of community and how defaulters of rules were punished (Meroka, 2006).

Colonialists introduced state forestry or Centralized Forest Management (CFM) or Scientific (professional) forestry to safeguard colonial interests of which at the beginning was commercial exploitation of timber but later ecological and biodiversity protection were incorporated (Blomley *et al.*, 2008; Neumann, 1997; Voss, 2007). The aim was to legitimize state rights over forestlands, limiting local peoples' access to forest who were considered to have destructive strategies of land use, and commercial exploitation of timber (Neumann, 1997; Meroka, 2006; Voss, 2007; Blomley *et al.*, 2008). The CFM is a top-down forest management approach whereby state reserves all access and use rights of the forest. The approach also excludes local communities in decision making about forests.

Under CFM, forests that were potential for ecological conservation or timber production were declared as forest reserves and were managed in accordance with the principles of scientific forestry. Between 1891 and 1906, the German had declared 231 forest reserves, which were managed by German forestry officials using Forest Conservation Ordinance of 1904 (Neumann, 1997). Thereafter, British administrators inherited German system of managing forests and in 1937 established Forestry Training Institute (FTI- Olmotonyi) to train forest officers. Again, they enacted forest laws that centralized management of forests in Tanganyika, nullified traditional systems of forest management and restrict local people to access and use forests (Neumann, 1997; Woodcock, 2000). After independence in 1961, the Government of Tanganyika (Mainland Tanzania) inherited colonial forest policy of 1953 and act of 1957, which were characterised by centralised decision-making, emphasizing scientific forestry, and largely excluded communities who were living adjacent forest reserves from rights to access and use the forest. Using limited resources, the government trained forest officials and forest rangers to manage forest reserves (Neumann, 1997).

However, the CFM did not produce satisfactory results in terms of improving forest conditions, governance, and livelihood of the rural people in most developing countries, including Tanzania. For instance, the assessment of forest conditions in Tanzania revealed the prevalence of many disturbances both within and outside forest reserves (Malimbwi *et al.*, 2005). The failure of CFM is associated with its framing - based on the forestry science.

Scientific (professional) forestry emanated in central Europe (German) in the late 18th century (Scott 1998; Perry, 1998). The profession comprises principles and methods aimed at ensuring that there is a permanent forest estate and a sustainable supply of forest

products, mainly timber. During colonialism, the principles of scientific forestry spread to the colonies (Vandergeest and Peluso, 2006a, 2006b; Scott 1998). In the colonies, the implementation of scientific forestry involved reserving large tracts of natural forest and controlling access and use of these forests by some, and allocating the rights of access and use to others (Sunseri, 2009; Neumann, 1997). Forest reserves were inventoried to generate data, which were used to estimate the growth rates of trees, to estimate how much could be harvested without compromising the objective of a long-term and steady supply of wood materials.

The forest inventory data were also used to prepare Forest Management Plan (FMP) – A document that describes the forest, provides detailed information on forest management goals and objectives and prescribes forest management activities for a certain period. The implementation of scientific forestry under CFM also involved clearing boundaries of forest reserves to prevent the reserve against forest fire and encroachment by forest adjacent communities for the establishment of new farms and settlements (Neumann, 1997; Woodcock, 2000; Pfliegner, 2010). The management of all forest reserves was vested on the professional foresters (Sunseri, 2009) who received training on forest management from forestry colleges such as FTI established in 1937. These foresters were managing the forests in accordance with scientific prescriptions stipulated in the FMPs (Guha, 1985).

Forest inventories, plus forest protection activities (i.e. forest patrols and forest fire management) and boundary consolidation activities of forest reserve increased the costs of forest bureaucracies of managing natural forests. Many developing countries had limited allocation of financial resources to the forest department of managing large tracts of forest reserves. As a result, these countries failed to recruit new foresters and supporting staff, to

invest in infrastructure development and to purchase new equipment and materials which were needed for managing forests, and even to update the FMPs which had expired (Hansen and Lund, 2017). Limited financial resources coupled with other factors such as corruption and lack of recognition of customary rights on land and forest resources among forest officials, led to the failure of the CFM in delivering its expected outputs (Katila, 2008; URT, 1998).

In 1970s, many developing countries opted for decentralised, local level management models, which would enhance sustainable resource management and support local development through active participation of forest adjacent communities. Such models are generally termed as participatory forestry approaches that comprise Community Forestry (CF), Participatory Forest Management (PFM), Joint Forest Management (JFM), Community-Based Forest Management (CBFM), indigenous forestry, and social forestry (FAO, 2004; Lund, 2015). These models refer to forest governance approaches that involve people living in and around the forests in the management of these forests (Lund, 2015). In 1990s, participatory approaches gained momentum in many developing countries. One of the reasons for this was the failure of the state sponsored CFM approaches in managing the forests effectively (World Bank, 1996). Therefore, participatory approaches were introduced by the government to correct shortcomings of CFM in managing the forests. These include exclusion of forest adjacent communities on decision making on forests matters, undermining customary rights over forests, and prioritizing scientific knowledge at the expense of local and indigenous knowledge in forest management (Hansen and Lund, 2007).

The participatory approaches enhance local communities' participation in forest management (World Bank, 1996). The central idea of participation is the inclusion of the

local community in a decision making about their adjacent forest (Agrawal, 2001). It is believed that by providing the local communities with necessary information and allowing their voices to be heard, their ideas, opinions, and knowledge to be taken into account would translate into effective and efficient forest management (Turnhout *et al.*, 2010). This is because local communities are believed to have the experience-based knowledge and skills in managing forests (Kajembe, 1994), and which include the knowledge on different uses of forest resources, tree species, and suitable tree sizes for different uses, traditional institutions – practices, and norms and customs of managing forests (Bala, 2015, Green and Lund, 2015). Therefore, participatory approaches, which were excluded during CFM in favour of scientific forestry, were now considered as an avenue of accommodating such knowledge.

Surprisingly, as was the case with CFM, participatory forestry approaches were also designed based on forestry science (Lund, 2015; Green and Lund, 2015; Scheba and Mustalhati, 2015). This is clearly manifested in the preparation and implementation of a Forest Management Plan (FMP). In the implementation of participatory forestry, FMP is a pre-requisite for transferring forest management authority to local communities in many developing countries (Schroeder, 1999, Arnold, 2001, URT, 2002, Nightingale, 2005, Movuh, 2012, Scheba and Mustalahti, 2015, Toft *et al.*, 2015). In Tanzania, for instance, according to the Forest Act No 14 of 2002, the FMP is a pre-requisite for transferring power to lower level, that is, village governments (URT, 2002). Thus, the transfer of forest ownership and management responsibilities to local communities are effected upon the approval of the FMP by the Village Government through Village Assembly. Later, the plan should be legalized and formalized by the respective District Council. Moreover, the Act requires a community to comply with management principles stipulated in the plan. The formulation of the PFM based on forestry science raises many questions, which

revolve around a degree of local communities' participation in the establishment, planning and implementation of the community forests as well as compatibility between technical and procedural forms of knowledge which are required in professional forestry and the capacity of local communities in terms of knowledge and resources to implement them.

1.2. PFM in Tanzania

The overarching goal of the PFM is to enhance sustainable forest management and support local development. The model considered that communities living adjacent to forests are better positioned to overcome forest degradation and deforestation, and thereby yielding other benefits such as improved livelihood and general welfare of the communities (Mustalahti and Lund, 2009). The introduction of PFM was the result of the 10 years pilot projects in community forestry in Duru Haitemba, SULEDO, and Migori whose communities opposed the introduction of “command and control” forest management system because it limits access to the forest. Thereafter, the 1998 forest policy officially introduced the PFM as forest management approach that devolves more power of managing forests to lower levels (i.e. villages) (URT, 1998; 2001; 2002). This is very well stated in policy Statements number 3, 5, 6 and 7 of forest policy (Box 1).

Box 1: Policy statements supporting PFM

Policy statement (3): To enable participation of all stakeholders in forest management and Conservation, joint management agreements with appropriate user rights and benefits will be established. The agreements will be between the central government, specialized executive agencies, private sector, or local government as appropriate in each case and organized local communities or other organization of people living adjacent to the forest.

Policy statement (5): To enable sustainable management of forests on public lands, clear ownership for all forests and trees on those lands will be defined. The allocation of forests and their management responsibility to villages, private individuals or the government will be promoted. Central, local and village governments may demarcate and establish new forest reserves.

Policy Statement (6): Village forest reserves will be managed by the village governments or other entities designated by village governments for this purpose. They will be managed for production and protection based on sustainable management objectives defined for each forest reserve. The management will be based on forest management plans.

Policy Statement (7): Private and community forestry activities will be supported through harmonized extension service and financial incentives. The extension package and incentives will be designed in a gender-sensitive manner. Extension services and financial incentives will be provided in support of “forestry activities” *per se*.

Source: National Forest Policy of 1998 (URT, 1998)

To effect local communities’ participation through the PFM, two approaches were introduced: 1) Joint Forest Management (JFM), and 2) Community Based Forest Management (CBFM) (URT, 2001). The JFM refers to a forest management regime whereby local communities are co-managers of a Village Forest Management Areas (VFMA) after signing a Joint Forest Management Agreement (JFMA) with Central Government in the National Forest Reserves (NFR), or Local Governments in Local Authority Forest Reserves (LAFRs). It is about sharing the costs and benefits between the forest owner and the communities. CBFM refers to a forest management regime whereby

local communities are owners and managers of Village Land Forest Reserves (VLFRs), Community Forest Reserves (CFRs), or Private Forests (PFs) (URT, 2001). Unlike JFM that focuses on declared forest reserves, the CBFM focuses on protection and conservation of forests on village land, which lacks proper management, and which is subjected to enormous pressure (URT, 2001).

Of the two approaches, Cap 323 [R.E. 2002] grants more authority to the local communities (i.e. village governments) over the CBFM than over the JFM. This study, therefore, focused on CBFM because in the CBFM, the laws devolve more power to communities in villages. The powers enable them to identify, declare, own, and manage forest resources on village land in ways which are both sustainable and profitable. This is unlike JFM where such powers are retained by the forest owner (either central or local government). Based on empirical evidence, currently, there are deliberate efforts by Non-Government Organizations (NGOs) that deals with conservation and projects in collaboration with district councils of promoting the CBFM in the villages. An initiative of World Wide Fund for Nature (WWF) in Tunduru District, Southern Tanzania of establishing VLFRs in collaboration with other NGOs and District Council is a good example.

1.3 Problem Statement and Study Justification

1.3.1 Problem statement

Since the inauguration of the National Forest Policy of Tanzania that paved the way for the PFM in 1998 (URT, 1998), followed by Forest Act Number 14 of 2002 (URT, 2002), the CBFM is operational in over 1,233 Tanzanian villages. This includes over 2,316,635 hectares (Ha) (Kilahama, 2013; URT, 2012), among these 409 VLFRs have been declared

and 71 VLFRs have been gazetted (URT, 2012). Despite these achievements, the major issue is whether CBFM is truly participatory.

The question has multiple dimensions. First, there is limited information on the level of participation of local communities in the establishment of the VLFRs. As per CBFM guidelines issued by the Government through Forestry and Beekeeping Division (FBD) in 2007, the establishment of the VLFRs has five main steps. These include: 1) getting started, 2) assessment and management planning, 3) formalizing and legalizing of the proposed a Village Land Forest Reserve (VLFR), 4) implementing planned activities as per approved Forest Management Plan (FMP), and 5) revising and gazetting the VLFRs. In the context of this study, the term establishment refers to all activities carried out in the first three steps. Previous studies that assessed participation of local communities in the CBFM in Tanzania (Green and Lund, 2015; Kajembe *et al.*, 2008) and elsewhere (Agrawal and Gupta, 2005; Mathews, 2011; Nightingale, 2005; Ribot, 2002) focussed on step 4 - implementation. The findings of such studies revealed that elite groups are dominating in the implementation. Accordingly, scholars associated elite with the designing of the CBFM, which emphasizes on formal knowledge. Thus literate and numerate members of the community are given an upper-hand including holding important positions in forest committees as opposed to the innumerate and illiterate members (Mathews, 2011; Nightingale, 2005).

Nevertheless, peer-reviewed literatures on how the local communities are participating in the establishment process of the VLFRs are limited or non-existent. Activities which local communities may participate as per the CBFM guidelines include the selection of the villages to be enrolled in the CBFM through showing interest, formation of the Village Natural Resource Committees (VNRCs), identification of forest areas to be declared as

VLFR, identification of village land boundaries and the boundaries of forest areas under VLFR, carrying out participatory forest resources assessment and management planning to produce provisional management plan, and approving the plan (i.e. formalising and legalising of the proposed VLFR) (URT, 2007) (see Chapter IV).

Second, the establishment of the VLFRs involves stakeholders from outside the villages who are interested in the conservation. These stakeholders have diverse interests, some of which are different from those, which are held by local communities. Therefore, they are creating pressures in the villages which are considered to be potential for ecological connectivity to set aside parts of their village land for either the VLFRs or Wildlife Management Areas (WMAs), which is another form of community based conservation initiative (Igoe and Croucher, 2007; Benjaminsen *et al.*, 2013; Bluwstein *et al.*, 2016; Bluwstein and Lund, 2018). Many villages in southern Tanzania, Tunduru District in particular, are potential for conservation because of the presence of Selous - Niassa wildlife Corridor (SNWC), which is a trans-boundary Wildlife Corridor situated between Selous Game Reserve (SGR) in Southern Tanzania, and Niassa Game Reserve (NGR) in Northern Mozambique (Baldus *et al.*, 2003). Furthermore, there are many attempts of securing the corridor through the establishment of community based conservation areas (Picard, 2010; Bluwstein and Lund, 2018; Noe and Kangalawe, 2015).

Scholars (e.g. Noe and Kangalawe, 2015) studied community participation and empowerment in wildlife protection and found that securing land through community participation is a fundamental success for external stakeholders; however, this intervention has not necessarily translated into local development. Picard (2010) conducted an appraisal of the Selous Niassa Wildlife Corridor, and found that the common interest between external stakeholders and local communities had not been identified or secured.

A very recent study by Bluwstein and Lund (2018) in the corridor found that the establishment of the WMAs created conflicts and contestation, which had negative effect on the livelihoods of the local people, and potentially poses a risk against achieving the ambition of conservation.

All aforementioned studies have one thing in common; they all focused on the establishment of WMA, and not the establishment of the VLFRs or both interventions. In addition, none of the previous studies focused on either the politics generated by external stakeholders or the challenges it presents to villagers during the processes of establishing both VLFRs and wildlife management areas. Unlike previous studies, this study highlights complex politics generated by the confluence of conservation claims, and the challenges it presents to local communities seeking to maintain authority over village land (see Chapter V).

Third, since the enactment of the Forest Act of 2002, there have been tremendous efforts by the state and non-state agencies to assist villages with forests on preparing and formalizing their FMPs. This is because the preparation of the FMP, which is a prerequisite of transferring power of managing forest to villages (URT, 2002, Green and Lund, 2015), is technical and requires a statistically sound forest inventory in order to determine the sustained yield from the forest for timber and fuel wood (URT, 2005; 2007a). Thus, it predominantly involves forest officials whose roles, among others, is to train members of VNRCs on how to carry out forest inventory, to estimate sustained yields and to prepare FMP. Furthermore, in 2001, the government through Forestry and Beekeeping Division prepared the first guidelines for carrying out Participatory Forest Resources Assessment (PFRA), which were revised in 2005 in order to fit them with the

required standards. The guidelines have been used as training manual of facilitating training of the VNRCs (Ball, 2011; URT, 2005).

The overarching objective of training is empowerment in order to enable VNRC members to repeat the process when the existing FMP expires or need to be improved. As a result, thousands of VNRC members have been trained since the implementation of the CBFM was officially started in 2002. However, little is known on whether VNRC members are actually empowered and capacitated to the extent of applying knowledge and skills they have acquired in training and in the actual inventories to replicate the process in the future. Previous studies focused on how empowerment of local people could reduce the costs of participatory forest monitoring, participatory forest resources assessment, and participatory carbon assessment (Holck, 2008; Mukama *et al.*, 2012; URT, 1998, 2001, 2005, 2007a; Zahabu, 2008). Neither of the study had ever attempted to evaluate the capacity of the VNRC members in replicating the planning process (see Chapter VI).

Fourth, the FMP comes with management prescriptions such as boundary consolidation, forest patrols, forest fire management, enrichment planting, harvesting plans for forest products (e.g. products and services prohibited from the forest, products with a free permit, and products with payable permit) (URT, 2004; 2005; 2007a; Kilwa District Council, 2012). Most of these prescriptions are rooted in forestry science, forest laws, administrative circulars, and decrees. However, as Kajembe (1994) and Kimmins *et al.*, (2005) point out, villagers who are required to implement scientific prescriptions in forest management have experience based-knowledge of managing forests.

Rutt *et al* (2014) in a study in Nepal reported that local communities found FMP prescription on harvesting of timber as irrelevant. Hence, they did not use FMP in

planning decision. They developed their own mechanism of estimating yields through experience based-knowledge. Similarly, Hansen (2004) reveals that in Iringa VNRC did not use inventory results as they solely based their harvest level on local experiences. However, all these studies focused on harvesting of timber and overlooked other products or management prescriptions. Nielsen and Lund (2012) studied the production and communication of information in a locally based monitoring system and found that the information produced was in contrast with the actual situation especially on wildlife densities, the level of forest disturbance, and financial flows. Funder *et al.*, (2013) reported that villagers altered monitoring procedures for their advantage. Both studies show how villagers shape monitoring system to favour their interests. The studies did not investigate how consistent the prescriptions of forest management plan are with the realities of the local community, of the forest, and of what happen when implementation of the plan meets these realities (see Chapter VII).

1.4.2 Justification of the study

The study thus contributes to debates on PFM, CBFM in particular, regarding forest management on the level of local communities' participation in the establishment and implementation of the VLFRs. The findings of this study contribute inputs towards the improvement of the CBFM guidelines, and consequently enhance local communities' ownership of the FMP and VLFR, and therefore contribute to alternative pathways of improving management of the VLFRs and yield positive outcomes on three PFM goals – improving forest condition, livelihood, and forest governance. Policy and decision makers will make use of the findings from this study to devise short-term, medium-term and long-term strategies for enrolling villages in the CBFM in order to attain sustainable forest management through the declaration of the VLFRs. The public will also be made more

aware of the existing situation about participation of local communities in the CBFM and thus facilitate positive changes in the establishment and implementation.

In addition, the findings will generate useful knowledge to policy makers and other stakeholders in the CBFM in establishing the CBFM structures at the village level.

1.4 Research Objectives

1.4.1 The overall objective

To assess level of participation of local communities in the CBFM at the village level in Tanzania.

1.4.2 Specific Objectives

Specifically the study intends to:

1. assess the level of participation of the local communities during the CBFM process of establishing the VLFR;
2. examine political underpinnings in the participation of the local communities during the CBFM process of establishing the VLFR;
3. evaluate trainings provided by professional foresters to VNRCs during the establishment of the VLFRs; and
4. assess how local communities participate in the implementation of FMP and whether their management practices comply with *de jure* FMP prescriptions and why.

1.4.3 Research questions

1. What is the level of local communities participation in the CBFM process in establishing the VNRCs, demarcating, and declaring VLFRs?

2. What are the political underpinnings during the establishment of VLFRs?
3. What did VNRC members learn in the training provided during establishment of the VLFR, and to what level they can use acquired knowledge and skills to replicate planning process?
4. How are the FMP prescriptions implemented?

1.5 Conceptual Framework of the Study

Figure 1 shows how the researcher conceptualized the study. The implementation of the CBFM involves multiple stakeholders who are divided into two main groups; internal (the community) and external stakeholders. According to the CBFM guidelines, 'the community' refers to people who live within or directly next to the forests on their registered village land (URT, 2007). The community in the registered village is the owner of all forests found in the village land. Thus, they have structural and institutional powers in the establishment of the VLFR. The community is considered to have local knowledge on the forest management developed over time based on experience, or adapted to the local culture and environment, or embedded in community practices, institutions, relationships, rituals and held by individuals or communities.

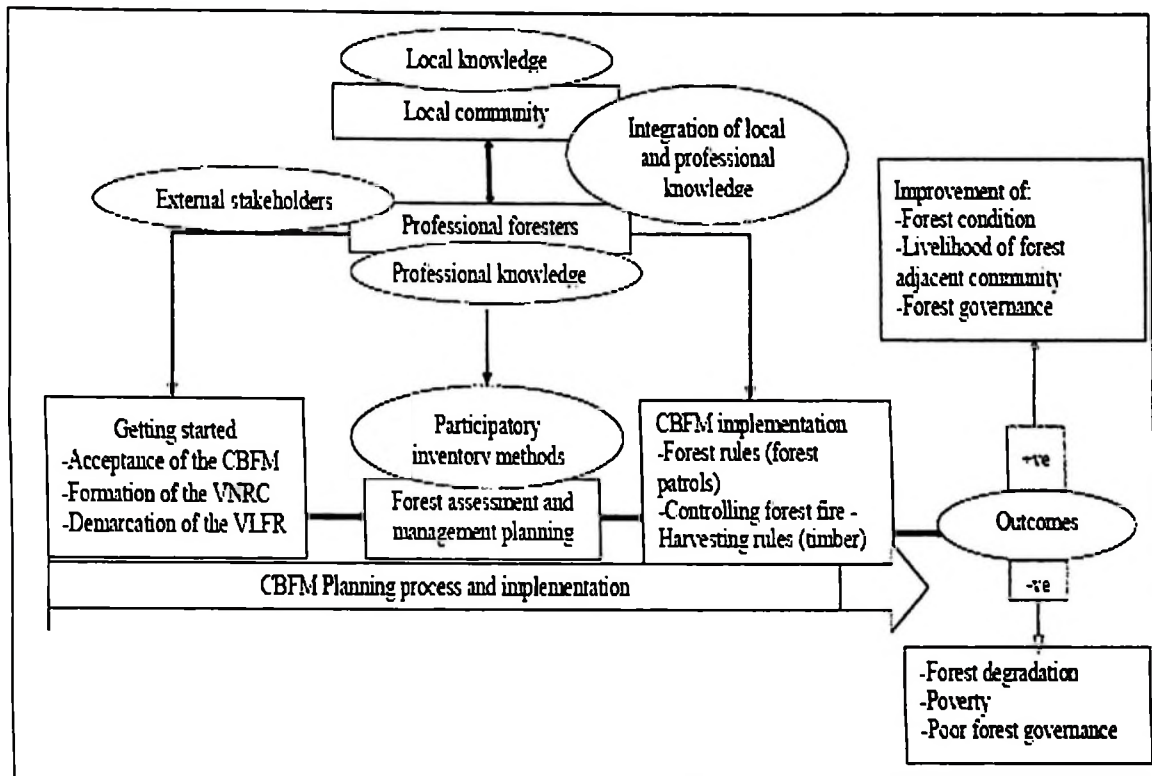


Figure 1: Conceptual framework underlying the study

External stakeholders are individuals or institutions/organizations from outside the village that are interested in the CBFM process of establishing VLFRs. These include local and central governments, government agencies, conservation NGOs, development agencies, conservation projects, and individuals. In the CBFM process, the external stakeholders have a facilitation role, both technical and financial. The technical part is carried out by professional foresters who are the people with professional knowledge on forest management obtained through formal trainings. They may either come from government institutions/agencies/departments such as district councils or NGOs, development agencies and forest related projects. Professional foresters interact with the community in the CBFM planning and implementation processes. The interaction aims at assisting the local community to fulfil technical and legal requirements of establishing VLFR in their respective villages.

The establishment of the VLFR entails five main steps; this study deals with the three steps namely, step 1 “getting started,” step 2 “assessment and management planning,” and step 4 “implementation.” Step I involves external stakeholders whose roles, among others, include initiation of the CBFM process by nominating villages and persuading village council and the entire community into accepting CBFM. Once CBFM is accepted, the external stakeholders facilitate the formation of VNRC and demarcation of the forest area as VLFR. All these activities are carried out in a participatory manner. Forest regulations emphasize participation because of increasing the legitimacy of the planning process, and enhance cognizant of the reality that planning process should involve those actors who are affected by the plans (Turnhout *et al.*, 2010). The level of local communities’ participation in the CBFM process and the political underpinnings during establishment process are addressed in Chapters IV and V.

It is envisaged that by giving community necessary information and allowing their voices to be heard, their ideas, opinions, and knowledge to be taken into account, would improve the quality of the plans and thereby resulting into effective and efficient implementation of the project (Cornwall, 2008). This is in line with the theory of common pool resource management, which suggests that the processes through which institutions are formed in a participatory and inclusive manner have positive outcomes for community-based management regimes (Ostrom, 1990; Varughese and Ostrom, 2001).

Step II in the CBFM process is forest assessment and management planning in order to prepare the FMP. In this step, the role of external stakeholders, particularly professional foresters is to train VNRC members on how to undertake forest inventories, which are necessary in informing the FMP. Therefore, training aims at imparting the VNRC members with technical skills and knowledge on how to carry out inventory forest and to

prepare the FMP (URT, 2005; 2007). In this regard, the question, which the current study is investigating, is the level to which the VNRC members can use acquired knowledge and skills to replicate planning process; this is addressed in Chapter VI.

In accordance with Forest Cap 323 [R.E. 2002] and CBFM guidelines of 2007, local communities are the managers of VLFR (URT, 2002, 2007). Therefore, in Step IV “implementation,” the community starts to implement forest management activities as prescribed in the FMP. These activities include forest patrols, record keeping, forest fire management, and harvesting supervision. The question of how the FMP prescriptions are implemented is addressed in Chapter VII. It is suggested that, if a local community actively participates in the CBFM process, and manages the VLFR in accordance with the FMP prescriptions, the forest condition in the VLFR will be improved. Consequently, this will also improve livelihoods of adjacent forest communities through sustained supply of products and services as well as improving forest governance.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Participation

The term “participation” has been defined in various ways depending on the specific context of use. For instance, Arnstein (1969) defines participation with a focus on citizen participation as redistribution of power that enables the have-nots, who are currently excluded from political and economic systems, to be included in the future. The World Bank (1996) defines participation as a process through which stakeholders influence and share control over development initiatives and the decisions that affect them. Cornwall (2008) defines participation as beneficiaries’ involvement. having a voice and influence in a decision-making process. All the definitions are describing beneficiary’s involvement, having voice and influence in decision-making process. In practice, participation is an effort of increasing public input oriented primarily to the content of the programs and policies (Quick and Feldman, 2011).

Participation started to be widely acknowledged in development agenda in 1960s. At that time, there was more pressure from the communities of increasing their sense of self-determination in their own development and being self-reliant and self-sustaining (Mansuri and Rao, 2004). Before 1960s, development agenda or strategies were designed around the conception of a preconceived model - ‘top-down approaches’ or growth models of development. In such models, the State or any other development agency defined the orientations and the most appropriate actions as well as the way these actions should be carried out to address a particular development problem (Mubita, *et al.*, 2017). The top – down approach did provide any room for people who were affected by the intervention or project to participate in the processes of decision-making. Consequently,

many interventions, which were introduced for implementation at the local level, failed because they were not compatible with local conditions that are shaped by different, socio-cultural, economic, and political realities. They were also not fit with the needs of the local people and cultural norms or in some cases they aggravated the problem, which they were supposed to solve (Brett, 2003; Mubita, *et al.*, 2017).

Since 1960s, contemporary development scholars and practitioners have been promoting the participation of local people in development practices. The reasons as to why participation is given a priority over top-down approaches include the followings: 1) perceived intention of increasing legitimacy of the planning process, and 2) recognition that planning process should involve those actors who are affected by the plans (Turnhout *et al.*, 2010). In addition, participation is considered as important because of the following reasons: 1) it enhances learning process, 2) it improves the quality of the decisions, and 3) it contributes to empowerment (Turnhout *et al.*, 2010). In addition, 4) it promote democratic citizenship, 5) it bridges the gap between external sponsored knowledge, which is scientific and the experience, values, and practices of actors who will implement the plan; and 6) it clarifies opposite views and interests regarding a particular problem (Bulkeley and Mol, 2003).

Many scholars examined and characterized participation. For example, Arnstein (1969) is the first scholar who characterized participation using 'ladder of participation' According to Arnstein, the citizen power is achieved when people have full control of decision-making processes. The ambition of including everyone has led to the development of participatory methodologies to replace traditional methods - extractive survey questionnaires. Robert Chambers on his seminal work *Rural Development: Putting the Last First*, criticized the use of extractive survey questionnaires and statistical analysis on

information from rural poor as these are not able to present realities of rural deprivation. Chambers introduced Participatory Rural Appraisal (PRA) to address weaknesses of extractive survey questionnaires as an alternative method for collecting data about a particular context (Chambers, 1983). The PRA is considered as a low cost, inclusive, and participatory, which allows people to express, enhance, share and analyse their knowledge of life and conditions, and to plan and to act (Chambers, 1994). Chambers refer to PRA as “hand over the stick” of authority to beneficiaries of intervention (Ibid).

Participatory approaches in developing countries, including Tanzania, emphasises on the use of participatory methodologies in order to ensure that everyone participates in decision-making processes (URT, 2005; 2007). However, despite that, participation is considered as a solution of addressing development problems, which are associated with top-down approaches; its implementation has several challenges. The challenge is scepticism among the local people on the worthiness of participating in the project. The second challenge is the difficulty of involving everyone in the community. Third, is time consuming while commitment and interest wax and wane over time. The forth is on difficulties of involving marginalized groups. Lastly, is the difficulty of classifying local communities into different social groups, therefore ending up assuming that local “communities” exist as distinct, small, well bounded, homogeneous, and integrated entities of which needs, values, sentiments, and ideologies are shared (Mubita, *et al.*, 2017).

2.2 Participation in CBFM

The terms “community based” is a keyword in the CBFM. It differentiates the approach with CFM, which is characterized by top-down, and exclusion of local communities. The terms “community based” refers to “community participation,” in decision making on

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issues related to forest management. These include planning and implementation of the forest management activities.

The establishment of the CBFM forests at village level involves several steps that requires local community participation. The most important steps include making decision on whether or not to accept CBFM project, preparation and approval of a village land use plan, election of the VNRC members, demarcation of the VLFR, preparation and approval of the FMP, and FMP implementation. According to the Forest Act No. 14 of 2002, VNRC members should be democratically elected through village assemblies. To ensure that the CBFM is participatory, the government issued a CBFM guidelines for the establishment of VLFRs, CFRs, and PFRs (URT, 2007). The guidelines, forest policy, act, and national forest programme of 2001, emphasize on inclusion and participation of all relevant stakeholders in the CBFM process (URT, 1998; 2001; 2002; 2007).

However, several scholars who studied CBFM in Tanzania and the same approach elsewhere argue that scientific framing of CBFM potentially contradicts its policies, goals of increasing participation with a view of achieving sustainable forest management (Green and Lund, 2015; Lund, 2015; Lund and Rutt, 2015; Lund and Treue, 2008; Nightingale, 2005; Ribot *et al.*, 2010). Their argument is stemmed on following issues. Firstly, democratic election of VNRC members in most cases is challenged by putting emphasis on literacy and numeracy. Thus, those who are illiterate and innumerate have limited chances of being elected in the committee. Furthermore, new VNRC members need to be trained, which demand financial resources to cover expenses of trainings. To avoid costs of training new members, some villages do not conduct VNRC election because the village governments have no funds for training. This undermines democracy, which is claimed to be promoted in the forest laws (URT, 2002). For instance, Green and Lund

(2015) report that District Forest Officers in Iringa Rural interfered the election of VNRC in Kiwele Village by instructing villagers to re-elect half of the old VNRC members because they got trainings and neither district nor village government had money to train new members.

Studies of community forestry (which synonymous of CBFM in Tanzania) in Nepal and Mexico observed that requirements of formal knowledge has been used by educated elites to control forest use and management (Nightingale, 2005; Mathews, 2011). They pointed out further that literate and numerate members of the community are the ones who hold important positions in forest committees. Similarly, the study by Ribot (2002) in Cameroon, Mali, South Africa, Uganda, and Zimbabwe observed that decentralization promotes elite capture as those with formal knowledge or economically better off hold important positions in forest committees.

Secondly, preparation of the FMP involves a technical process that requires a knowledge in forestry science. More often than not, local communities do not possess such knowledge. This gives professional foresters priority and reduces community representatives to passive participants and enumerators in the preparation of FMP (Ball, 2007; Mustalahti and Lund, 2009). In another study, Basnyat *et al* (2018) found that in the community forests where inventories were conducted, involvement of local community in the actual forest inventory was passive; they were tasked to do manual works. Furthermore, there was no genuine local communities' participation during revision of the plan as important aspects which were included in the FMP were not discussed in advance. Interest groups, such as women and marginalized people were excluded. Even those included were passive participants as many decisions were already done by forest bureaucrats. The plans were drafted in the office and sent to the community for endorsement.

In such situation, it is likely to limit local communities from securing ownership of the plan for effective implementation and impeding their ability to replicate the assessment. Scheba and Mustalahti (2015) in the study carried out in Angai VLFR in Liwale District, Southern Tanzania observed that neither ordinary villagers nor chairman of the VNRC had studied the plan and by-laws in depth. The plan was said to be drawn through active participation of district officials and development agents, and thus villagers did not understand well the whole concept of VLFR and their rights over VLFR as prescribed in the FMP. They perceived that there were not allowed to access forests excepting for collecting honey without using fire, medicinal plants, and using forest paths.

Because of being technical, the preparation of FMPs becomes an expensive exercise. For instance, more than 27,000 USD was given to consultants to prepare FMP for 8567 ha of village forest in Namatunu Village, Southern Tanzania (Sungusia and Lund, 2016). Thus, resource constrained foresters face the incentive of taking shortcuts to minimize costs, and this affect negatively the quality of the data from forest inventories (Hansen, 2004; Mathew, 2011; Rutt, *et al.*, 2014). According to Bala, (2015) FMPs had expired as were prepared in 2003 and were not updated because of lack of funds. In addition, there was no forest inventory which had been done since 2007 because of limited resources. The estimates on annual allowable cut were done based on previous studies carried out within and outside the VLFRs that established growth rates of some trees species in Miombo woodland.

Elsewhere, the forest committee in Nepal relied on ocular assessment and forest walk to inform forest management decision (Rutt, *et al.*, 2015). Basnyat *et al.*, (2018) reports that the estimation of growing stock and annual allowable cut in ten Community Forestry User Groups in Nepal was done based on previous inventory results or using inventory results

of nearby forests. In some cases, management plan revision process was manipulated in order to fit with the requirements of the government.

Baral, *et al* (2018) in Nepal found that insufficient sampling intensity and estimation of stand parameters (e.g. Diameter at Breast Height - DBH, height, counts of seedlings and saplings) were based on guessing rather than on actual measuring and counting of trees in the forest. Some forests were not inventoried, forest data which were used to draw forest management plans were either fabricated or manipulated by copying from previous forest inventories. Only two out of five community forests with plans had actually been inventoried; one was inventoried ten years ago, and the other in 2015. Even with these inventoried forests, the inventories were poorly conducted, this is particularly because of inadequacy of human resource, unrealistic budgetary requirements, and government circulars and decrees.

Higher expenses associated with the preparation of the FMPs also hinders the transfer of forest management and use rights to local communities as many governments in developing countries had no funds of financing the preparation of FMP (Ball, 2007; Mustalahti and Lund, 2009). Therefore, this is also constraining local communities from managing forests in their area of jurisdiction.

Showing how higher cost affects the transfer of forest management rights to the villages, the Mustalahti and Lund, (2009) reported that 13 villages of Angai Forest Reserve stayed for 13 years before getting their FMPs of 140,000 Ha. This was because of neither Liwale District Council nor villages had TZS 180 million to fund forest inventory in order to prepare forest management and harvesting plan. This could be one of the reasons as to why there is low adoption of CBFM in Tanzania, despite the reality that many villages

have large tracks of unreserved land of about 19.4 million ha (URT, 2015). A very recent statistics on CBFM status in Tanzania shows that for more than two decades of CBFM, only 12.1percent (2.3 million ha) of 19.04 million Ha of forests on public land are currently managed by villages (Kilahama, 2013). The remaining 83.3percent, are still unreserved, which allows Tanzania Forest Service (TFS) Agency to continue enjoying the benefits. In the same study, Kilahama (2013) concludes that there is a slow rate of spreading and adoption of the CBFM.

Thirdly, the framing of CBFM on scientific basis is considered as undermining the local interests while promoting the national interests. This is because, according to Klooster (2002), forestry science favors national interests over local ones, stresses on industrial raw materials such as timber over other forest uses, and discourages indigenous land uses such as burning, woodcutting and grazing. Similarly, Mathews (2011) observes that the requirement of the FMP is seen as a means used by forest bureaucracies to extend their control over forests while it is seen by the communities as a way of acquiring management rights over forests on their land (see also Ribot, 2002). Furthermore, scholars (e.g. Ribot, 2002; Nightingale, 2005) have shown that framing of the CBFM on scientific basis is used by bureaucracies as a ploy of retaining certain lucrative power and thus discouraging participation. In particular, Ribot (2002) observes that “scientistical” arguments posed in the CBFM are among the means used by the governments to transfer fewer forest management rights to the local people.

Elsewhere, Brukas and Sallnäs (2012) reveal that foresters demand the FMP for the purpose of controlling diverse interests in forest utilization and protection. Similarly, Cerutti *et al.* (2008) suggest that FMP is an instrument of ensuring ecological, economics, and socially sustainable management of the forest. In another study, Peluso (1992) argues

that the promotion of social forestry programs is a strategy of the state of taking control over forest resource, especially in areas where peasant resistance has jeopardized revenues from state forests. As reported by Basnyat, *et al.*, (2018), the process of plan revision in Nepal was used to establish and consolidate techno- bureaucratic supremacy and to recentralize powers over the decentralised forest resources by strengthening accountability of forest user groups towards the District Forest Office. Forest bureaucrats used this process to earn economic incentives in terms of income and indirect benefits in terms of food, transport expenses, expenses for stationeries, telephone expenses and the like. Similarly, donors used the plan revisions in pursuit of their interests from the projects they support.

2.3 Politics Underlying Local Communities' Participation in CBFM Process

The CBFM process involves different stakeholders who have diverse interests and influence/power. Stakeholders are defined as individuals, groups of people, organizations, and institutions who have direct, significant and specific stakes in a forest (Murphree and Mazambani, 2002; Prell, *et al.*, 2009). Other terms which are sometimes used interchangeably to refer to stakeholders are “actors” and “interest groups” (Krishnarayan, 1998). Understanding of interest, incentives, relationship, and powers of stakeholders is a prerequisite in any participatory process like CBFM. It enables stakeholders to understand who will influence decision-making process, who will be affected by the decisions and actions taken, and who has the powers of influencing the outcome (Reed, *et al.*, 2009).

In the CBFM process of establishing VLFR, stakeholder analysis in order to understand their interests, influence, and powers is not given the due attention. To date, identification and selection of stakeholders forming CBFM governance structures is based on the existing CBFM guidelines. Unfortunately, the guidelines do not provide information about

interest, incentives, relationship, and powers of stakeholders rather than conditions, which marginalize or even exclude relevant stakeholders (URT, 2001; 2007). In addition, the guidelines consider a community as a small group of people affiliated with a certain territory (e.g. village) (Agrawal and Gibson, 1999), which is contrary to the established fact that the majority of Tanzanian villages have more than 1000 people of different ethnic groups, occupations (e.g. farmers vs livestock keepers), and education levels.

In such a situation, it is correct to define community as a group of people who shares common interests and norms (Agrawal and Gibson, 1999). Therefore, within the community, there are different stakeholders whose interests are very important and should be known and included in the CBFM process. It is believed that a proper selection of stakeholders leads to resolving conflicts, improving stakeholder commitment, and reducing distrust between stakeholders for better results. If the process is not handled properly, it may lead to marginalising important groups, biasness, and may jeopardise long-term viability and support for the forest management planning (Prell, *et al.*, 2009).

Lack of proper identification and inclusion of stakeholders could be one of the reasons as to why CBFM lacks uniform impact in achieving policy goals (Isango and Mhoru, 2009; Kajembe, *et al.*, 2009; Mndolwa, *et al.*, 2009; Mbwapbo *et al.*, 2012). There are some areas where CBFM has been successful and has achieved positive impact and there are other areas where CBFM has failed in these parameters. Such outcomes are mostly determined by the interest of powerful actors (Schusser, 2012; 2013). Nzunda, *et al.*, (2011) have showed that CBFM is successful in areas where there is consensus, cooperation, and equity among competing stakeholders and through equal sharing of incentives from the forest. Thus, equity is an important factor in any part of the CBFM framework especially in involving the local poor in decision-making. In areas where there

is no equity, the CBFM is inactive and in some cases it serves individual rather than community interests (elite capture).

Every stakeholder has certain powers, which are categorised as strategic powers, structural powers, and institutional powers. Strategic power is derived from ones' endowments and entitlements. This type of power includes education, economic ability, rational argumentation or ideological manipulation. There are empirical evidence showing the influence of strategic powers on natural resources management. For instance, Mbeyale (2009) reveals the use of strategic power in land acquisitions in the mountains and lowlands of Pangani River Basin. Kicheleri *et al.* (2018) reveals that NGOs in Burunge WMA has strategic powers which is used to manipulate local communities into accepting WMAs. The author also reveals that investors in Burunge WMA used strategic power to convince the Authorised Association to stop villages including Kakoi from grazing cattle in the WMA. Manyika *et al.* (2013) reveals that strategic power gave NGOs higher bargaining power on the Reducing Emissions from Deforestation and forest Degradation (REDD+) process in Tanzania. Amanzi (2011) found that stakeholders with strategic powers have stronger influence, access, control, and use of common pool resources in the upstream of Uluguru Mountains, Tanzania.

Institutional power is systematised, regulated, and involves mandates which are dictated by law (Nuijten, 2005). Such power relates to positions in the government, organisations or associations (Amanzi 2011; Mbeyale, 2009). Scholars (e.g. Kicheleri, 2018; Amanzi, 2011; Mbeyale, 2009) report that local and national institutions which are responsible for natural resources management; for example, Authorised Associations, village natural resources committees, Water Users Associations, Village Councils, District Councils, Forestry and Beekeeping Division (FBD), and Wildlife Division have institutional powers

which enable them to have some influence in the management of the respective natural resources. As reported by Green and Lund (2015), VNRC members who manage VLFR in Kiwele Village exercised institutional powers to ban the production of charcoal because charcoal producers do not adhere to the existing rules and that the practice has negative consequences to forest conservation.

Structural or domination power refers to a particular type of power relationship that is stable, hierarchical, fixed, and difficult to reverse. Domination refers to those powers which are asymmetrical whereby the subordinated persons have little room for manoeuvring because their margins of liberty are extremely limited. Such powers relate to cultural or social positions in the family or society (e.g. being household head, traditional leader, etc), political or administrative/government position at local or national level (this relates to an administrative setup in the natural resource sector (for example, being a village/VNRC chairman). Mbeyale (2009) reports that the trends of household labour, land ownership, access to water and forest resources and distribution of resources in the mountains and lowlands of Pangani River Basin are mobilized through structural powers. However, in most cases, structural powers cannot work alone in multiple governance levels; to make these powers effective, there is a need of a backup of institutional or strategic powers (Kicheleri, 2018).

The presence of stakeholders with diverse interests and power in the natural resources management may become a source of power struggles (conflict) over resource ownership and management. Kichereli (2018) reveals the existence of different power struggles in the implementation of the WMA in Burunge. These power struggles include over collection of revenues from the WMA investments between Wildlife Division and Authorized Association, struggles over the sharing of revenues between the Village Councils and the

Burunge Authorised Association, and struggles over revenues among the WMA forming villages. According to Kichereli (2018), power struggles over the management of Burunge WMA, villagers lost control over their lands to Authorized association. There were also power struggles over resource access and use following instituting rules and regulations that limit access and use of WMA, which had free access in the past. These include rules and regulations that prohibit villagers from accessing and using the water, roofing grasses, building poles, and from accessing dry season grazing sites, firewood, grasses for roofing, and Doum Palm from WMA (Kicheleri *et al.*, 2018).

Elsewhere, Peluso (1992) reveals that the enactment of rules and regulations that limit access and use of natural resources (forest) creates resistance between resource users (peasants) and regulators (state). In case of Java, Peluso shows that the enacted laws limited access of peasants from forest and labeled unauthorized users of forest as “timber thieves”, “poachers”, or “squatters”. In this case, peasants protested against losing access of forest through poaching, which was interpreted by the state as resistance. Furthermore, Peluso (*ibid*) identifies four forms of state control of access to forests and mechanisms used by peasants to resist these forms. The forms of control include, 1) control over land; 2) control of species; 3) control of forest labour; and 4) ideological control. All these forms aim at fulfilling the followings roles of the state: land lord, enterprise, and conservation institution. The peasants resisted forest land control by encroaching forestlands for cultivation; species control by poaching; labor control by strikes; and ideological control by maintaining the culture of resistance.

Furthermore, Holmes (2007) reveals the presence of resistance in conservation projects; however, its patterns depend on the type of conservation which is being enforced, the method of enforcement, social context of the communities affected, and physical

properties of the resources being conserved. Holmes (ibid) identifies the causes of resistance, which include eviction and exclusion of people from the protected areas because of interference with their livelihood practices. Thus, local communities resist through carrying out illegal activities. Resistance can either be implicit (e.g. cutting trees for timber) or explicit (e.g. cutting trees for hatred). It is important to understand motivation of the illegal act to distinguish implicit from explicit resistance. Holmes (2007) also shows the importance of analyzing political content of illegal acts in order to formulate goals which are favourable to both conservationists and the local communities.

2.4 The FMP implementation in the VLFRs

Forest Management Plan (FMP) is considered as the most important instrument for guiding sustainable forest management in order to achieve a sustainable supply of quality forest products and services. The need of FMP emanates from the fact that many forest bureaucracies tend to regard FMPs as important instruments for implementing forest policies. In this case, foresters deliberated on the structured FMP in order to address policy objective by modifying actions of the local communities. In that respect, forest bureaucracies regulate actions in community forests by introducing standard planning procedures and guidelines that stipulates resource use and management activities. These are manifested by the uniformity of the management plan in Tanzania (URT, 2007; 2012).

According to Brukas and Sallnas (2012), the FMP may function as a stick or carrot. It functions as a stick through operationalizing legal stipulations in the form of compulsory forest management requirement for a specific forest. However, the regulatory nature of the plan may vary due to differences in their scope and degree of coerciveness. This situation is typical in Tanzania where when the local communities fail to manage the forest as per FMP, forest bureaucracy takes over its management (URT, 2002). The FMP function as a

carrot – this works by making the FMP as a prerequisite for the forest owner to obtain certain benefits such as user rights. This is in line with Tanzanian 1998 National Forest and Forest Act, which requires local communities to have FMP in order to be granted user right of the VLFR (URT, 2002).

In the implementation of the CBFM, VNRC members are required by forest laws to manage the VLFR in accordance with the FMP. Therefore, they have been received training on how to undertake forest patrols, keeping records, and issuing license and permits. Thereafter, the committee starts managing the forest as per the forest management prescriptions, which are stipulated in the plan (URT, 2005; 2007a; Green and Lund, 2015). The question is whether FMPs are followed in day-to-day forest management activities. As Vandergeest and Peluso (2006) observe, the strength of scientific framing of the CBFM is only on paper in the form of the FMP. In most cases, the FMPs are not adequately followed while making decisions regarding forest management. Similarly, some of the forest management prescriptions which are stipulated in the FMPs are in contrast with the experience-based knowledge of the local communities, thus, they tend to modify them in order to fit the context of local community (Hansen, 2004; Rutt *et al.*, 2014; Green and Lund, 2015; Bala, 2015).

In another study conducted by Topp-Jørgensen *et al.* (2005) in five MEMA project areas covering 23 villages in Tanzania, it is revealed that VNRC members follow the plan partially as indicated by limited number of forest patrols; 2.25 patrols/village/month as opposed to four (4) patrols envisaged by villages in the monitoring manual. The reason for carrying out fewer forest patrols was lack of incentives. As reported by Scheba and Mustalahti (2015), the FMP drawn for the Angai VLFR stipulates the responsibilities of every actor, rules, and regulations on how the forest should be managed. However, VNRC

members managed the VLFR in contravention of the FMP prescriptions; this is because they were issued permits for forested areas outside the VLFR for those who wanted to harvest trees for timber.

In another study carried out in VLFRs in Iringa Rural District, Tanzania, Bala (2015) reveals that the VNRC members opposed to harvesting 4119 m³ per year for fuel wood production which was recommended by District Forest Officers. This is because in their view, the estimated amount did not reflect the reality in the forest. Instead, they reduced the amount to 1500 m³ in their endeavour to achieve sustainable utilization. The amount estimated by VNRC based on their understanding of the abundance of the harvestable sizes in the forest after conducting rapid forest walk. Furthermore, apart from what the plan has prescribed, the village went a step further to improve forest management, including increasing the number of patrol guards and remunerations for patrol guards to avoid the risk of being bribed by illegal wood cutters. There was also a plan of establishing permanent charcoal kiln (Bala, 2015).

As reported by Sungusia and Lund (2016), the FMP, which was prepared after extensive forest inventory involving consultants from highly reputable forestry college, ended in the village office shelves. This is because the plan did not present what was actually in the forest, therefore it was not followed. This is because 127 Mninga trees (*Pterocarpus angolensis*) of harvestable size (>45 cm) which was prescribed to be harvested in block 1 were not found during the actual harvesting, which was started about two (2) months after approval of the FMP in June 2015 (June 2015 to May 2019). Consequently, the harvesting was carried out in block 2 which was not in the harvesting plan, and was scheduled to be harvested after five years (the plan divided the forest into 5 blocks with felling circle of 25

years). The first harvesting plan was prepared for block 1, which was supposed to be harvested for 5 years.

As Toft *et al.* (2015) conclude, operation plans (i.e. FMPs) are minimally applied in the actual forest management; instead they are used by executive members of Community Forestry User Groups to garner legitimacy around forest management decision. For instance, in some cases, harvesting levels were determined by users and not the operation plan. The selection of trees for harvesting is done based on the visual estimation instead of the prescribed size in the operation plan. As revealed by Rutt *et al.* (2015), forest management plans are not used to inform day-to-day forest management practices. Even forest committee were not aware of the prescriptions of their plan. In one site, the authors found significant differences between what was prescribed in the plan and the actual management practices with regard to annual timber supply limit. With regards to household supply, the forest committee declined upper limit set by the plan. In another case, the prescription of the management plan with regards to the harvesting level of fuel wood, the annual allowable cut was reduced by the forest committee because of the decreased demand of the product due to increased availability of the alternative fuels.

On the other hand, scholars (e.g. Rafael and Swai, 2009; Nielsen and Lund, 2012; Funder *et al.*, 2013) reported on how the VNRC members managed forest in accordance with the prescription of the forest management plan. They highlighted activeness of VNRC members in carrying out forest patrols and monitoring. However, in such CBFM forests, there was a budget for paying allowances to members of VNRC who were participating in forest patrols. For instance, according to Green and Lund (2015), patrol allowance for members of VNRC is TZS 5 000/= (equivalent to USD 2.5). Therefore, such incentives make forest patrol most implemented management prescription. Another area where

authors indicated compliance is dissemination of information on the progress of forest management.

2.5 Theories Underlying Local Communities' Participation in the CBFM

The central idea of participation in the CBFM is the inclusion of different stakeholders in decision making about their adjacent forest (Agrawal, 2001; Cornwall, 2008). According to the CBFM guidelines, the CBFM process is a participatory process that calls for involvement of all actors.

To understand participation in the CBFM, this study is inspired by the work of Andrea Cornwall titled “Unpacking ‘Participation: models, meanings, and practices” (Cornwall, 2008) (see Chapter IV). Cornwall (2008) acknowledges the importance of typologies of participation developed by scholars such as Arnstein (1969), Pretty (1995), and White (1996) as a starting point of understanding the degree and kinds of participation. Arnstein (ibid) considered participation like a ladder where every step represents different level of participation (Fig. 2). The citizen power is achieved when citizen participation is ranked at the top of the ladder, in which citizen control, delegated power, and partnership are placed. The bottom of the ladder, where therapy and manipulation are placed is considered as a stage of non-participation. Here, the citizens are only educated about the program or project but are not taking part in the actual planning process. Campbell *et al.* (2002) describe step 1 as “Passive participation” and represents the situation where people are only informed on what is going to happen. A point of departure is found at the centre, which Arnstein (1969) termed as “tokenism” where consultation, informing, and placation are placed.

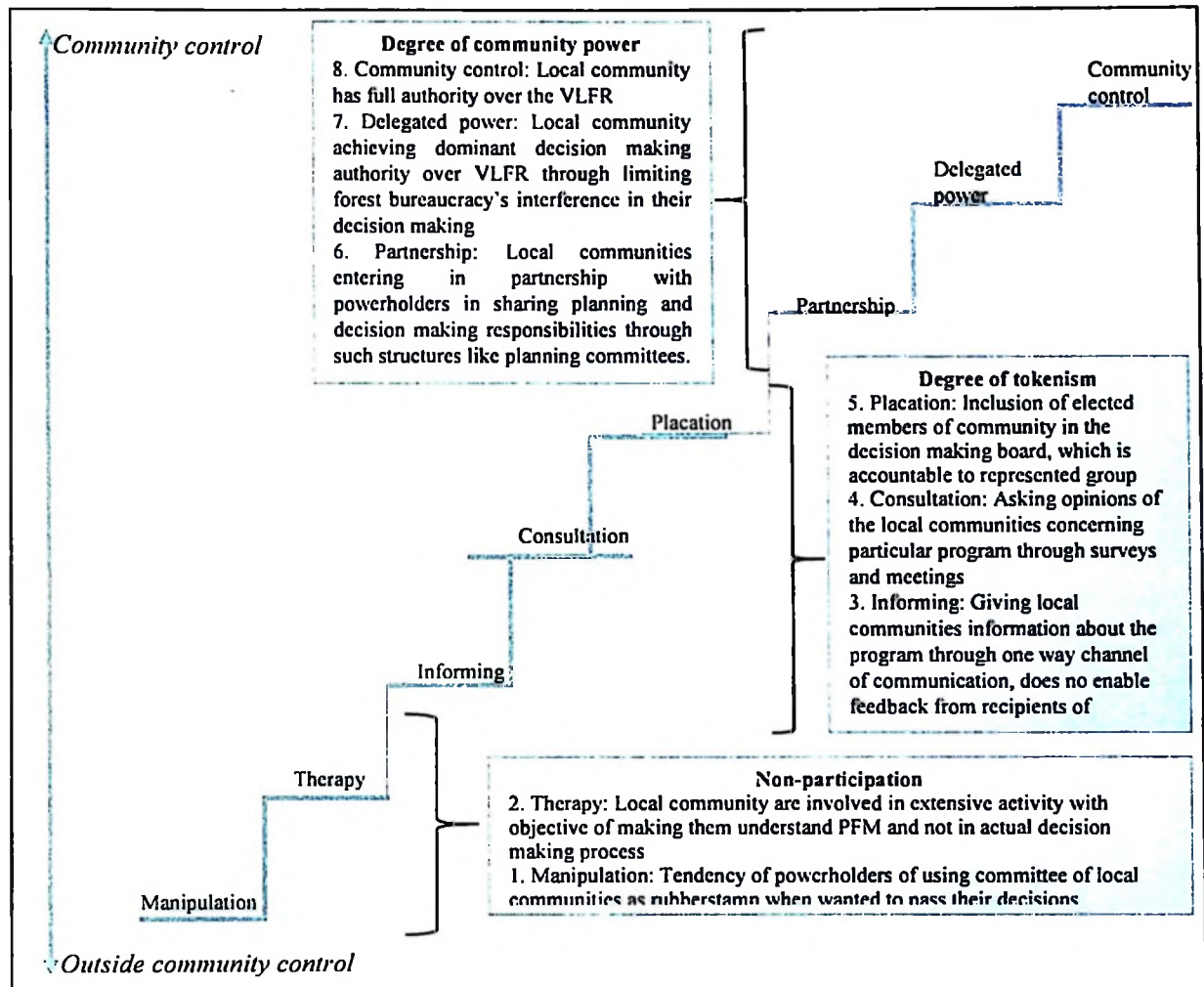


Figure 2: Theoretical framework to understand level of participation

(Source: Adopted from Ladder of a Citizen Participation (Arnstein, 1969))

Elsewhere, Pretty (1995) speaks more of the user of participatory approaches, and places manipulative participation at the bottom, followed by passive participation, where people are being told what has already been decided. Other forms include participation by consultation, material incentives, functional participation, interactive participation, and self-mobilization. White (1996) provides insights on different interests at stake in various forms of participation. The author's typology is useful in identifying conflicting ideas about why and how participation is used at a particular stage in a participatory process.

In actual practice, all forms of participation shown in Fig. 2 may be found in a single project or different stages. Thus, according to Cornwall (2008), in assessing participation, apart from its forms, it is also crucial to consider who participate, and in what. The question “who participates” in this case aims at understanding different kinds of participants who take part in the CBFM process. The question also provides information on who is excluded and who exclude themselves. This is important because participation tends to shape and reshape the boundaries of action and power relation between actors. Another question, which is “participation in what”, aims at understanding: 1) decisions in which the public has the opportunity to participate in, 2) and who can participate in.

Cornwall (2008) emphasise further on the importance of considering spaces of participation in order to understand the level of participation. These include created and invited spaces. The latter refer to those spaces created by outsiders in response to statutory obligations and are structured and owned by those who made them. In CBFM processes, these include village assemblies, meetings of the village council, seminars, and workshops. On the other hand, the created spaces are those, which are made by the communities themselves such as community-based conservation groups who shares common interests.

Furthermore, as Cornwall (2008) argues, participatory process should focus on making people able to influence decision rather than limiting their involvement. With this regard, the assessment of participation should focus on strategies, which are used by outsiders to nurture people into raising their voice, instead of meeting attendances. The efforts should be on whether people feel able to express themselves without fear of reprisal or fear that their opinion would not be taken seriously. Furthermore, Cornwall (2008) acknowledges that it is difficult to get full participation. Instead, there is a possibility of getting ‘optimum

participation'. This can be done through the choice of a methodology through which local communities participate in the participatory process. These include the participation of representatives and direct democratic forms of participation (Cornwall, 2008).

In participation of representatives, which is a common practice in the CBFM, care is needed in the selection of the representatives; and the focus here is on how representatives are selected and whether they represent the interest of their group in the actual practice. There is also a question of clarity of the information on what these who are invited to participate in decision making should hear. In this, the focus of this study is on strategies of making different segments of local communities participate, channels of information, and a flow of information. Cornwall (2008) argues further that participatory process because of its complexity and diversity should be seen as a political process. Seeing participation as a technique may lead to an abuse of the concept. Therefore, to achieve optimum participation, the political will of all actors in the process is required.

CHAPTER THREE

3.0 GENERAL METHODOLOGY

3.1 Study Area

3.1.1 Location

Tunduru District is found in Ruvuma Region in Southern Tanzania (Fig. 3) where five villages namely Machemba, Sautimoja, Namakambale, Songambele, and Mindu were purposively selected. Tunduru District was selected because CBFM process, which started in 2014, was in progress when this study started in October 2015. Therefore, it was appropriate site for the researcher to observe how the local communities participates in the CBFM process leading to the establishment and later on, the actual implementation of VLFRs. The District is also one of the two districts in Tanzania that form Selous-Niassa Wildlife Corridor (SNWC), the longest and largest elephant range in the world, and is situated between Selous Game Reserves in Southern Tanzania (48,000 Km²) and Niassa Game Reserve in Northern Mozambique (2,400 Km²) (Hofer *et al.*, 2004). The District also falls within Ruvuma Landscape, an ecosystem with high diversity of plant, bird, reptile, and mammal species (USAID, 2015).

Tunduru District is one of the five districts in Ruvuma Region; others include Namtumbo, Songea, Mbinga, and Nyasa. The district borders Nachingwea District of Lindi Region to the north, Nanyumbu District of Mtwara Region to the east, Mozambique to the south, and Namtumbo District to the west.



Figure 3: A map showing a location of Tunduru District

3.1.2 Topography and hydrology

The land is relatively flat with wide ridges, which are divided by river furrow and other small valleys that become wider and steeper as they run to the hill slopes. The hilly areas range from 500 to 800 m. above the sea level. The district is one of the important sources of rivers and streams that discharge water to Ruvuma River, which originated in Songea District and pour its water into the Indian Ocean. The major rivers in the district include Muhuwesi, Lumesule, Mkowela, and Msenjewe.

3.1.3 Geology and soil

In general, the geology of the area is characterized by rugged hills dissected by narrow upsetting comprised of Precambrian and early Proterozoic granites and granodiorites with gneiss basement rocks intruded by quartz and pegmatite veins. The soils are dark grayish brown to reddish brown loam and very fertile. Because of its soil types, the district supports the production of a variety of crops.

3.1.4 Climate

The district is characterized by a hot climate with an average annual rainfall that ranges from 800 to 900 mm. The climate is typically tropical by single rainfall pattern of rain season starting from December to May and a dry season from June to November. There is a variation of temperatures with an average of 25°C with the highest temperature being 29°C and the lowest is 22°C. The hottest months begin from September to June and the coldest months are from May to November of each year.

3.1.5 Forests and wildlife

Forests in Tunduru District are dominated by Miombo woodlands that form crucial catchment for several Ruvuma River tributaries. The forests are also important habitats,

breeding area, and pathway for animals moving to and from Mozambique. The protected areas (PAs) in the district, including state-owned forest reserves are Mwambesi (104,052 Ha), Muhuwesi (170,945.3 Ha), Nandembo (10,689 Ha) and Sasawara (39,886 Ha) (URT, 2014). Others are three Wildlife Management Areas (WMAs) and seven VLFRs. The WMAs include Nalika with ten villages (1,391 Km²), Kisungule with three villages (1,345 Km²), and Chingoli with four villages (938 Km²) (WWF, 2014b). The VLFRs include Sautimoja (21,966 Ha), Songambebe (10,217.1 Ha), Namakambale (4,491 Ha), Mindu (3,713 Ha), Machemba (4,612 Ha), Msinji (6,413 Ha), and Ng'apa (16,855.2 Ha).

Outside the PAs, there are many stretches of forests on general land (previously called public lands) managed by Tanzania Forest Service (TFS) Agency through TFS-District Forest Manager (DFM) – Tunduru. Most of the so-called forests on general land are found on the village land whose majority of the population depends on these forests for the collection of the forest products.

Nevertheless, forests in the district are considered as being under serious threat because of the need for agricultural land and for forest products mainly building materials and fuelwood. This is attributed to an increase of the population in the district by the annual rate of 2.1% (URT, 2013), coupled with fast improvement of infrastructures mainly Masasi - Tunduru - Songea Road, which make the district accessible to the regional and national markets for both agricultural and non-agricultural products (WWF, 2014a). In addition, another threat facing both reserved and unreserved forests in the district is a tremendous increase of immigrant pastoralists mainly Sukuma who are moving with their livestock from Mbeya, Morogoro, and Coast regions in search for pasture and water. Furthermore, the burning of land as part of agricultural practices is another threat to the forests.

Forests in the district, both reserved and unreserved provide habitat for big games like Elephant (*Loxodonta africana*), Lion (*Panthera leo*), Leopard (*Panthera pardus*), Buffalo (*Syncurus caffer caffer*), Eland (*Taurotragus oryx*), Dikdik (*Rynchotragus kirkii*), Hartbeest (*Alcelaphus buselaphus*), Warthog (*Phacochoerus aethiopicus*) and Wild big (*Potamochoerus porcus*). Others include Common Duikers (*Sylvicapra grimmia*), Samble (*Hippotragus niger*) and Greater Kudu (*Trgelophus strepsiceros*), Spotted hyena (*Crocota crocuta*), Olive-Baboon (*Papio anubis*) as well as Vervet-Monkey (*Redunca redunca*). The area is also a home for birds such as Francalins (*Francollinus*), Helmeted Guinea fowl (*Numida*), and Crested Guinea fowl (*Gultera*), Snipe (*Capella*), Doves (*Streptopelia*), Chestnut beelied-sand grouse (*Pterocles*) and Yellow throated-sand grouse (*Eremialector*) to mention the few. The forests harbour different types of snakes such as pythons, cobras, vipers, and puff adders. Other reptiles in the forest reserve include lizards, monitors, and chameleons. Insects such as red ants, black ants, grasshoppers, termites, and beetles are also found in the reserve.

Presently, there are several interventions in the district aimed at securing forests into a network of protected areas. A good example is the three-year project (2014-2017) financed by the World Wide Fund for Nature (WWF), which is aimed at scaling up PFM in Tunduru District under the Ruvuma Landscape Programme (RLP). The overarching goal of the project was to improve forest governance and local livelihoods through supporting 15 villages into taking control of, manage, and benefit from its Miombo woodlands. The technical components of the project included facilitation of the CBFM process such as the establishment of the VNRC, trainings, demarcation of the VLFR, assessment of the VLFR to draw forest management and harvesting plans in collaboration with Tunduru District Council (TDC) and two Non-Government Organizations namely Mpingo Conservation and Development Initiative (MCDI) and Tanzania Community

Forest Network (Mtandao wa Jamii wa Usimamizi Misitani Tanzania, MJUMITA). Seven villages have already registered their VLFRs.

3.1.6 Administration and population

Administratively, the district is divided into seven divisions, 35 wards, more than 150 villages, and more than 500 sub-villages. As per 2012 population and housing census, Tunduru District has 298,279 people among these 143,660 are males and 154,619 are females. The average household size was 4.2 people (URT, 2013). The majority of people in the district belong to Yao ethnic group under patriarch society. Other ethnic groups in the district are Ngoni, Makuwa, Nyasa, Matengo, Makonde, Ngindo, and Mwera to mention a few.

3.1.7 Socio-economic activities

Agriculture is the main economic activity for the majority of the communities. They grow both food and cash crops. Major food crops grown in the district include maize, paddy, cassava, sweet potatoes, and pigeon peas. Other crops are millet, groundnuts, beans, and legumes. Cash crops grown include cashew nuts, sesame, and groundnuts. There are also fruit trees such as mangoes, coconuts, oranges, pawpaw, and guava. Except for mangoes, the production of other crops is mainly for local consumption. There are also small-scale livestock keepers who keep cattle, goats, and chicken. Nevertheless, the number of livestock and livestock keepers are increasing in the district due to an increase of in-migrant pastoralists mainly Wasukuma and Mwamang'ati from Morogoro, Mbeya, and Lindi regions.

Besides agriculture and livestock, people in Tunduru District are also engaged in other socio-economic activities. These include casual labour, petty trade (e.g. small shops,

vendor stall), handcraft (e.g. carpentry, Mason, weaving, tailoring), crop trade, and exploitation and trade of forest products.

3.2 Methods

3.2.1 Study design

The study used descriptive cross-sectional study design whereby data were collected at a single point in time from the targeted population. It is descriptive because it is set out to describe local communities' participation in the CBFM. This design is adopted because it is economic in terms of time and money.

3.2.2 Sampling design

Purposive sampling technique was used to select five villages in Tunduru District (Fig. 4). The first two villages, Machemba and Sautimoja, were selected to address first objective (see Chapter IV). These villages were purposively selected because they had just completed CBFM process in October 2015 when this study started. Therefore, the respondents had fresh memories and were able to describe how they participated in the CBFM process that led to the declaration of VLFRs. One village, Machemba Village was purposively selected to address second objective (see Chapter V) because before 2014 the village was enrolled in two different community based conservation initiatives. Both initiatives targeted the same forest area, Chiumbe which is situated in the western part of the village, bordering the state-run Sasawara Forest Reserve that is managed by TFS. Sasawara Forest Reserve is part of the so-called Sasawara - Lukumbule elephant route, which is reported to be used by animals that migrate to and from both Selous and Niassa Game Reserves (Hofer *et al.* 2004).

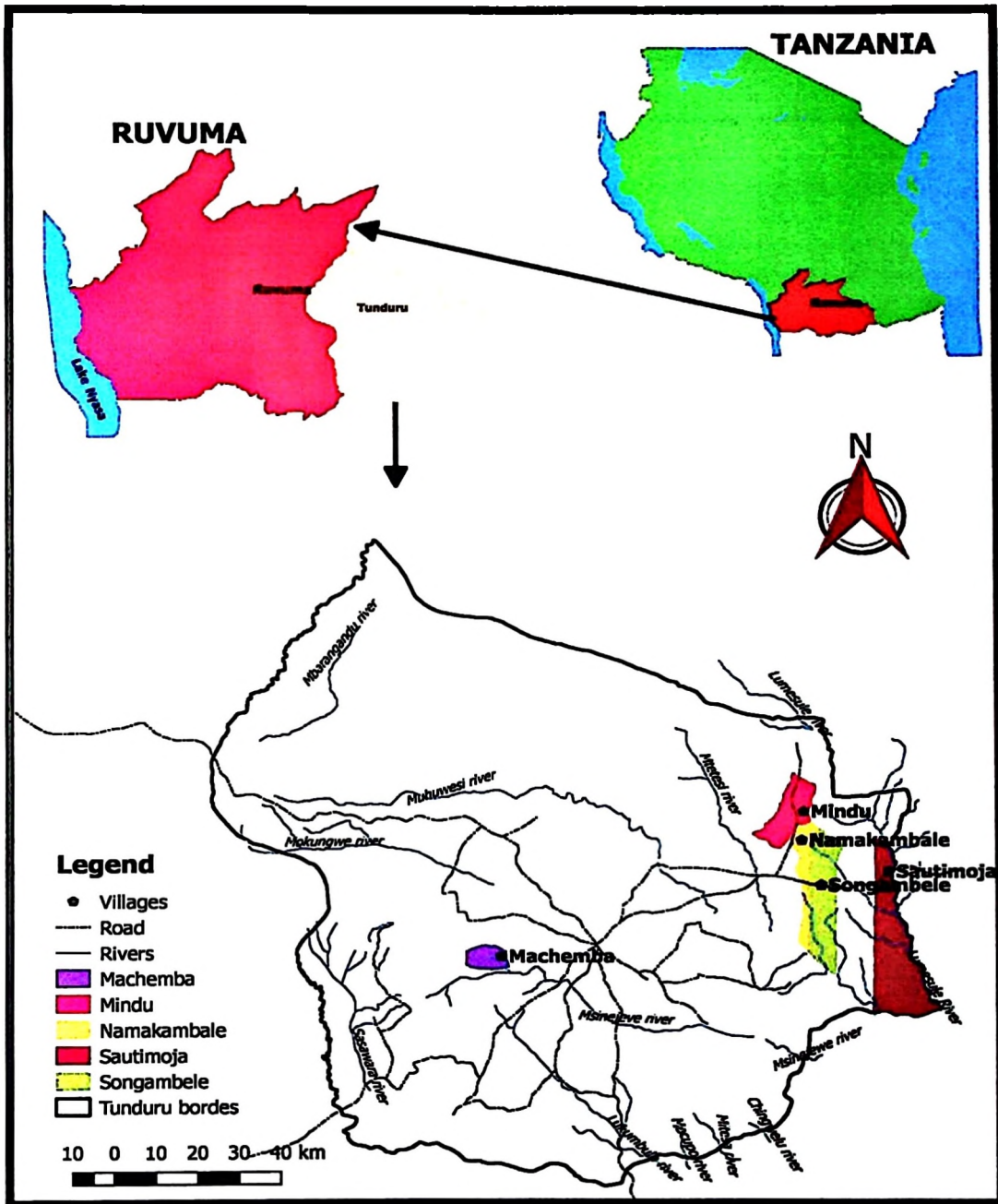


Figure 4: A map of Tunduru District showing study villages

Three villages namely Mindu, Namakambale, and Songambe were selected to address third objective (see Chapter VI). These villages were selected because participatory planning started at the time when this study commenced - in October 2015. Therefore, it was easier for the researcher to take part in participatory forest planning as an observer. One village, Sautimoja was purposively selected to address fourth objective (see Chapter

VII). The village was selected because it had all relevant documents required for this study such as forest management plan (+ harvesting plan), training manual, minutes of the meetings, training notes, and records keeping books for harvesting of trees for timber production.

For household survey, stratified random sampling technique was employed to select households. Whereas sampling unit was a household, which is defined as a group of people living together and sharing the same kitchen. A stratum was a group having the same economic status (wealth group). Stratification of households was preceded by the development of attributes for each wealth group. The activity was carried out with the help of local communities during Participatory Rural Appraisal (PRA). The sampling frame was a list of households in a segment (stratum). The sample size (number of households) for each stratum is 15% of total households.

3.2.3 Data collection methods

The research involved both qualitative and quantitative data collection methods. Primary data were collected through a range of methods including PRA, household surveys, semi-structured interviews, and participant observation. Multiple methods were applied to increase credibility and validity of the results (triangulation). Triangulation for divergence was used to clear doubt on differences between what had been prescribed by village leaders and the actual practice. Triangulation for complementarity was used to seek detailed information or clarification on the issues emerged from committee members or village leaders. This was mainly used in the interview results where Focus Group Discussions (FGDs) were conducted to supplement information on the emerged issues. Primary data were supplemented with information from grey and published sources including official reports and records (e.g. reports of Village Land Use Plans, Forest

Management Plans, minutes of the meetings, and training materials) gathered from the village government offices.

3.2.4 Participatory Rural Appraisal (PRA)

The PRA was used at the beginning of this study as it was necessary to build rapport and obtain general information on communities involved. PRA methods mainly participatory resource mapping, wealth ranking, oral history, FGDs and interviews were performed together with extracting relevant information from the villagers (Table 1). PRA meetings were conducted in each village that comprised of 8 - 10 people (Angelsen *et al.*, 2011). The FGD conducted in sampled villages in this study was guided by checklist (Appendix 1 and 2). In all PRA meetings, people involved were from diverse social backgrounds (age, sex, social position, and income group). The activities lasted for about 3 hours to trace histories of the land use planning and demarcation of the VLFR, and understanding of how local communities participated in the CBFM process.

Table 1: Information generated during community profiling

Type of information	Purpose	PRA method used
Background information	Get information on land use history, land use plan, economic activities, land/forest ownership, identification of actors, and their involvement in different CBFM activities.	Oral history
CBFM history	Get information on when and how CBFM started in the village, who initiated the process, how people got involved, and how many CBFM meetings convened.	Oral history
Socio-economic status	Stratification of the communities into wealth categories using their criteria, e.g. type of a house, amount of land owned, number of livestock owned, number of main meals per day and type of transport owned.	Wealth ranking
Land and forest committees	Get information on when and how various natural resources committee were obtained, who facilitated the process of their establishment and how villagers involved	Focus group discussion
Spatial information	Get community's perceived distinction between major zones of land use and topography. Village land use categories and their status	Participatory resource mapping and transect walk

3.2.5 Household survey

Household surveys were carried out to a sampled households for two reasons: 1) to quantify issues resulting from the PRA with special ties to the research questions, and 2) spatially distributed households in large villages. Therefore, it was difficult to access the majority of villagers through semi-structured interviews. The collected data include socio-economic activities, and their participation in planning and implementation of CBFM process to establish VLFRs. The questionnaires (Appendix 3) were administered to household heads (Plate 1) or spouses from two villages – Machemba and Sautimoja (see Chapter IV).



Plate 1: A researcher (left) interviewing household head (right) in Machemba Village

3.2.6 Participant observation

Participant observation, which provides information on the context, involved the researcher taking part in several forest-related activities that took place in the study villages. The exercise lasted for six months, which was a period the researcher stayed in the studied villages and participated in different occasions consisting of village assemblies, meetings of the village council, and training (Plate 2). The researcher paid

attention to the following issues in the course of participating and working with villagers:

i) strategies which were used by facilitators to make local communities participate; ii) strategies of collecting and using inputs from local communities for decision making; iii) the ability of local communities to influence decision; iv) the degree of representation; v) access to information about forest management; vi) the capability of local communities to carry out participatory forest inventory; vii) forest management practices; and viii) involvement of local communities in day to day forest management activities during the actual implementation.



Plate 2: A researcher participating in training together with VNRC members and Village Councillors in Namakambale Village

3.2.7 In-depth interviews (Semi-structured interviews)

In-depth interviews were conducted with an open framework, which allows for focused, conversational, and two-way communication. It started with general questions or topics followed by specific questions. open-ended questions started with *Why, How, What, Where, When, Who* and *How many* were asked (Appendix 4) to key informants to solicit

information about participation in the CBFM. Key informants who were involved include forest officials, CBFM practitioners, and village leaders (Plate 3).



Plate 3: A researcher (right) interviewing a Chairman and Secretary of Village Land Use Committee in Sautimoja Village

3.2.9 Secondary data

The secondary materials such as grey and published literature were reviewed with three main objectives: firstly, to extract data to supplement those collected from other sources. This was done by reviewing official reports and records, which were gathered from the office of village governments including a report of Land Use Plans (LUPs), Forest Management Plans (FMPs), bylaws, minutes of the meetings, and training materials. The extracted data include a schedule of the meeting, meeting attendance, agenda, facilitators, and the type of training provided. Secondly, to understand the framing of local communities' participation in the CBFM process was important in order to formulate appropriate research questions. In this respect, several government documents were reviewed including guidelines, policies, and laws. Thirdly, the literature was reviewed to

get inspiration on how other scholars are explaining participation in forest and other related fields. This involved reviewing both published and unpublished literature, which was accessed from reliable sources such as books, online journals, and unpublished thesis. The collected information was used to formulate a theoretical and conceptual framework of the study, and acquired the language of explaining participation in the local context.

3.3 Data Analysis

3.3.1 Analysis of qualitative data

The analysis of data, which were collected using PRA tools, started immediately after the starting of data collection exercise (Chambers, 1994). These include data collected through participatory mapping and wealth ranking. Content analysis was used to analyse qualitative data, which were collected through individual and group interviews, participant observations, and oral history. Both conceptual analysis (establishing the occurrence and importance of concepts and phenomenon in a text or communications) and relational analysis (which examines the relations among concepts and situations) were applied in the content analysis. The objective was to reduce the volume of recorded information or communication to a set of categories that represent some characteristics of the variables.

3.3.2 Analysis of quantitative data

The data, which were collected through structured questionnaires were first coded and entered into the Statistical Package for Social Sciences (SPSS) computer software for analysis. The descriptive statistical analysis was used in exploring the data for the distribution of responses, central tendencies, and dispersion. Household information was treated according to individual villages; however, sometimes all the villages were pooled together.

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CHAPTER FOUR

4.0 MANUSCRIPT I: Whose voice matters? Understanding processes of participation in the establishment of the Village Land Forest Reserves in Tanzania

Abstract

The study was carried out in Machemba and Sautimoja villages of Tunduru District, Tanzania, to assess who participated in the process of establishing Village Land Forest Reserves (VLFRs) and what was the level of participation. Primary data were collected through household surveys, participatory rural appraisal, interviews and participant observation. The findings indicate that the process of making communities fully participate in establishing VLFRs had never reached the point of the local communities being in control. The agenda behind the establishment of the VLFRs emanated from the external conservation stakeholders. Through their strategic and institutional powers, they were successful in influencing and manipulating the local leaders and the communities, and thereby managing to control the decision-making process of accommodating their mission and desired plans. In general, the findings indicate that there was no genuine intention by powerful stakeholders to provide a space for communities to raise their voices, and therefore, there was no genuine participation.

Keywords: Participatory forest management, Participation, Community forestry, Forest Management Plan, Tanzania.

4.1 INTRODUCTION

4.1.1 Background information

It is now two decades since Tanzania adopted the national forest policy that accommodates Participatory Forest Management (PFM) (URT, 1998). Over the years, there have been several attempts of assessing the impact or effect of the PFM approach as opposed to the Centralized Forest Management (CFM) on the improvement of forest conditions, local communities' livelihood and forest governance. These attempts had mixed results, in terms of both successes and failures (Lund *et al.*, 2015; Mbwapbo *et al.*, 2012; Mongo *et al.*, 2014; Perfect-Mrema, 2017; Treue *et al.*, 2014). There have been report of the infliction of forest rules on the harvesting of forest products, which escalate negative consequences for forest conditions, livelihood, and local governance (Amanzi and Hansen, in press; Perfect-Mrema, 2017; Sungusia and Lund, 2016). However, there is no explicit explanation as to why the PFM has mixed results across the country.

This paper addresses this problem by examining a Community Based Forest Management (CBFM) process, which is one of the PFM approaches that call for the establishment of Village Land Forest Reserves (VLFRs). Participatory processes, which were carried out at the beginning of the CBFM process to establish the VLFRs, are hypothesized as one of the reasons for the mixed CBFM impacts. At that stage, it is hypothesised that ideals of participation including consensus, better decisions, and legitimacy, are critical issues, but are likely to be ignored. Nevertheless, there is no evidence of how community members participate in reaching consensus during the establishment of the VLFR. Most studies that assessed participation in the CBFM mainly focused on the implementation (Kajembe *et al.*, 2009; Mndolwa *et al.*, 2009; Nuru *et al.*, 2009; Raphael and Swai, 2009) and not on the establishment of the VLFRs.

The notable exceptions are studies on participatory processes in establishing Wildlife Management Areas (WMAs), which, like the CBFM, constitute a Community Based Conservation (CBC) approach. Studies in WMA show that the processes were done for a particular purpose that is necessary to establish WMA and were characterised by manipulations (Benjaminsen and Bryceson, 2012; Bluwstein and Lund, 2016; Goldman, 2003, 2011; Igoe and Croucher, 2007; Loveless, 2014; Moyo *et al.*, 2016; Rantala and German, 2013). In such situations, the voices of community members were not heard, and therefore ideals of local communities' participation were blurred. Although both CBFM and WMA are CBC approaches, they have different frameworks and legal bases for their establishment as provided for by the Forestry and Wildlife Divisions (URT, 2007a, 2012b). Therefore, the findings in WMAs may have limited application in the CBFM. In this regard, a study on CBFM processes is very important in informing policymakers and CBFM practitioners on how best to achieve genuine participation and accommodate local community voices.

Both Forestry and Wildlife sectors have developed guidelines for the establishment of VLFRs and WMAs, respectively. However, each sector has divergent ideas on how to devolve power to the village level (URT, 2002, 2012b). CBFM guidelines for the establishment of VLFRs based on Tanzania's structures of local government, such as the Village Council, Village Assembly and Village Natural Resources Committee (VNRC)¹ – a sub - committee of Community Services (Nelson and Blomley, 2007; URT, 2002, 2007a). On the other hand, the establishment of WMA involves more than one village and requires villagers, through their village assemblies, to elect a Community-Based Organization (CBO), which can manage the WMA, and be granted 'Authorized

¹ VNRC is a sub-committee of the Village Council, established in accordance with Forest Act No. 14 of 2002 (URT, 2002) and CBFM guidelines for the establishment of the VLFRs (URT, 2007).

Association (AA)' status by the Director of the Wildlife Division. The AA is a new structure in a setup of the village government (URT, 2007b, 2009, 2012b). The two CBC approaches also differ regarding on resource of interest, management objectives, and lines of authority.

The CBFM guidelines call for the community to participate fully in the process of establishing VLFRs (URT, 2007a). The guidelines consider the community as a homogeneous group, which is defined as “all people who live within or next to the forests on their village land (URT, 2007a, p. 7). Furthermore, the CBFM guidelines recognise the presence of external stakeholders who play a facilitation role in the establishment of a VLFR. Stakeholders may include local and central governments, government agencies, conservation NGOs, development agencies, and projects. The question—“Whose voice matters?”—aims at uncovering whose decisions count and whose influence matters in the process of establishing VLFRs, through addressing the following questions: 1) who participates in the establishment of the VLFRs, and 2) to what level?

These questions can be used to understand whether local communities' voices, concerns, opinions, and knowledge are taken into account during CBFM processes to achieve consensus, better decisions, and legitimacy. It is assumed that if the CBFM processes are participatory and inclusive, they should result in effective and efficient implementation of the initiative (Cornwall, 2008). This is in line with the theory of common pool resource management, which suggests that the processes through which institutions are formed in a participatory and inclusive manner have positive outcomes for community-based management regimes (Ostrom, 1990; Varughese and Ostrom, 2001).

4.1.2 Theoretical framework

Participation refers to deliberate efforts to include a group that is presently excluded from the political and economic process (Arnstein, 1969). As shown earlier, the implementation of the CBFM involves multiple stakeholders who can be divided into two main groups: internal (the community) and external. To understand whose voice matters in the participatory processes of establishing the VLFRs, this study is inspired by the work of Andrea Cornwall entitled, “Unpacking ‘Participation’: models, meanings, and practices” (Cornwall, 2008). Cornwall (2008) acknowledges the importance of typologies of participation developed by Arnstein (1969), Pretty (1995) and White (1996) as a starting point of understanding the degree and kinds of participation.

In assessing local communities’ participation, Cornwall’s questions, “Who participated?,” and “Participation in what?” (Cornwall, 2008) are adopted. The first question, “Who participated?” in this case aims at understanding different kinds of stakeholders who take part in the CBFM processes. The question also dwells on who is excluded and who exclude themselves. The second question, “Participation in what?” aims at understanding: 1) decisions in which community members had an opportunity to participate, including decisions on whether to accept the CBFM initiative, formation of a Village Natural Resource Committee (VNRC), identification of forest area to be VLFR, and demarcation and declaration of the VLFR; and 2) who actually participates.

Cornwall’s spaces of participation: created and invited spaces are also adopted. According to Cornwall (2008), *invited space* refers to platforms which are created by outsiders in response to statutory obligations and are structured and owned by those who make them. In the CBFM processes, these include village assemblies, village meetings, seminars, and workshops. On the other hand, *created spaces* are spaces, which are made by the

community members themselves who share a common interest, such as community-based conservation groups. Furthermore, Cornwall (2008) acknowledges that it is difficult to get full participation. Instead, there is the possibility of getting “optimum participation through the choice of the methodology through which local communities participate. These include participation by representatives and direct democratic forms of participation. The selection of the representatives was assessed and analyzed, focusing on how representatives were selected and whether they represented the interest of their groups in actual practice.

In analysing the level of participation, Arnstein’s ladder of citizen participation was adopted. The ladder looks at participation from the perspective of a citizen. Citizen power is achieved when citizen participation is ranked at the top of the ladder, where citizen control, delegated power, and partnership are placed. The bottom of the ladder, where therapy and manipulation are placed, is considered as a stage of non-participation. A point of departure is found at the centre, which Arnstein terms as “tokenism,” where consultation, informing, and placation are placed (Arnstein, 1969).

4.2 Study Area and Methods

4.2.1 Study area

This study investigated how community members participated in the CBFM processes in establishing VLFRs in Sautimoja and Machemba villages in Tunduru District, Southern Tanzania (Fig. 5). This area was selected because is where the CBFM, which started in 2014, under the auspices of the World Wide Fund for Nature (WWF), was in progress when this study commenced in October 2015. Therefore, Tunduru District was an appropriate site to observe local communities participation in the CBFM process that led

to the establishment of the VLFRs and later the actual implementation of management activities as per FMP.

4.2.2 Methods

4.2.2.1 Sampling design

Random sampling techniques were used in this study for the selection of sampling units, though, sometimes convenience sampling was done whenever a participant expressed explicit interest in being interviewed. Sampling unit in this study was a household, which is defined as a group of people living together and sharing the same kitchen. Zahabu (2008) adopted a similar definition for questionnaire survey in Tanzania. The sample size (number of households) for each stratum was obtained using a mathematical formula (refer chapter 3). Sampling frame was a list of households in each wealth group namely: 1) higher income households (rich); 2) middle income households; and 3) low income households (poor), which were prepared with the help of sub-villages' leaders. In this respect, leaders first developed criteria/attributes for each wealth group (Table 2), then divided households into the aforementioned segments (Table 3), and finally prepared a list of households for each wealth group. The lists were enriched with inputs from previous exercises of identifying poor households, which qualify for receiving funding from Tanzania Social Action Fund phase II (TASAF II) and subsidized agricultural inputs administered by Village Government in 2014 and 2015, respectively.

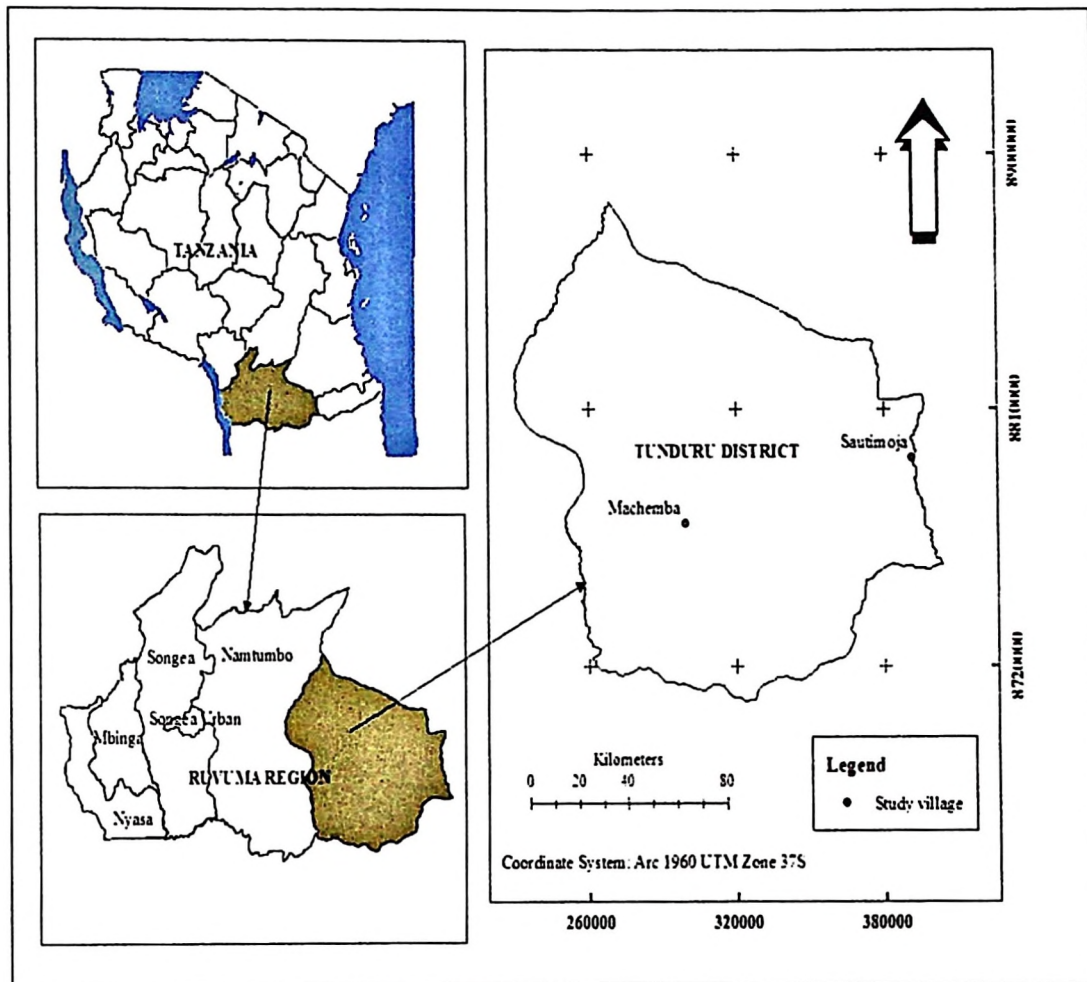


Figure 5: A map showing study villages

Table 2: Attributes of wealth ranking

Criteria	Villages					
	Sautimjoja		Machembwa			
	Rich	Middle	Poor	Poor		
Materials used to build a house	Burnt bricks, iron sheet and concrete floor	Unburnt bricks, and thatching grasses	Poles, withes, mud, thatching grasses	Burnt bricks, iron sheet and concrete floor	Unburnt bricks, and thatching grasses	Poles, withes, mud, thatching grasses
Sources of income	Farm, shop, power tiller, grinding machine, tricycle (carriage)	Farm and petty trade e.g. food stall etc	Farm, weaving and casual labour e.g. weeding, tilling land etc	Farm, crop trading, shop, power tiller, grinding machine	Farm and petty trade	Farm and casual labour e.g. weeding, tilling land (kugaba) etc
Farm size	Cashew nut: > 10 acres	Cashew nut: 1-2 acres	Cashew nut: 0.5 acres	Paddy: 4-5 acres	Paddy: 1-2 acres	Paddy: 0.5-1 acres
Livestock	>10 goats	Mainly chicken	Mainly chicken	Cattle: 4-5 Goats: 10-15	Goat: 6-8 Chicken	Mainly chicken
Transport	Motorbicle	Bicycle	None	Motorbicle	Bicycle	None
Meals	Three times a day	Three times a day	Two meals a day	Three times a day	Three times a day	Two meals a day
Ability to cover medical expenses	Regional/referral Hospital e.g. Ndanda	District hospital, e.g. Mangaka	Dispensary in neighbouring village	Regional/referral Hospital e.g. Mbasa	District hospital, e.g. Tunduru	Dispensary within the village
Ability to cover education expenses	Can afford private secondary school	Can afford ward secondary school	None	Can afford private secondary school	Can afford ward secondary school	None
Average income per annum	3 million	1.5 million	300,000	10 million	1-2 million	200,000-300,000
Proportion of each category	10%	35%	55%	10%	15%	75%
Households in each category	13	47	73	62	93	464

Table 3: Sample size in each wealth group

Wealth group	Sautimoja		Machemba		Total	
	Number of households	Sample size	Number of households	Sample size	Number of households	Sample size
Higher income	13	5	62	9	75	14
Middle income	47	10	93	14	140	24
Low income	73	15	463	70	536	85
Total	133	30	618	93	752	123

4.2.2.2 Data collection

The study applied a combination of the Participatory Rural Appraisal (PRA), household surveys and participant observations, supplemented by secondary materials. Five PRA meetings with 8– 10 participants from diverse socio-economic backgrounds (age, gender and income groups) (Angelsen, 2011) were conducted in each village and lasted for about three hours. Ten interviews with individual key informants were conducted, mainly with professional foresters from FBD, Tunduru District Council and (TFS), facilitators of the CBFM process, village leaders and ordinary villagers from different socio – economic groups. The exercise was conducted with an open framework, which allowed for focused, conversational, and two-way communication. Interview guides were used, and the interview lasted between one and two hours. All interviews were recorded by taking notes by hand, or with a voice recorder and transcribing the notes later.

About 123 household questionnaires were administered to randomly selected household heads or spouses from different socio-economic groups in the two villages. For this study, the sampling unit was a household. However, in Sautimoja Village, the use of 15 percent produced a sample size of 20; therefore, 30 households were selected as suggested by Bailey (1994) that at least 30 units which are randomly selected should be a sufficient sample irrespective of the population. Sampled households in each wealth group were picked randomly by the use of a `random_between_function` in MS excel. Candidate households were then sorted based on their sub villages. The list was printed without bearing wealth category and handled to sub village's chairperson who introduced the researcher to the household head or spouse. The questionnaires were administered in Swahili by the researcher. The data collected include socio-economic activities and respondents' participation in various activities in the CBFM process.

The participant observation, which gave information about context, involved a researcher taking part in several forest-related activities occurring in the study villages. For six months, the researcher stayed in the villages and participated in different occasions and activities, including training and meetings of village assemblies, Village Councils and VNRC. Many of the issues observed were noted in the field logbook and some were recorded and later transcribed. Pictures of important events were also taken to supplement audio and for reference purposes.

Secondary materials, such as grey and published literature, were reviewed to supplement primary data. The reviewed materials involved official reports and records gathered from the office of village governments, plans, minutes of meetings, and training materials. The data extracted include meeting schedules, meeting attendance, agenda, and the type of trainings provided. In addition, published and unpublished literature were reviewed in

framing research questions and getting insights of how other scholars have discussed participation in forestry and other related fields.

The analysis of data collected through PRA methods began immediately after the commencement of data collection exercise (Chambers, 1994). Content analysis was used to analyze qualitative data collected through individual interviews, participant observations, and oral history. The objective was to reduce the volume of recorded information or communication to a set of categories that represent some characteristics of the variables. Detailed analyses of some documentary materials were done to explain local communities' participation in CBFM process. Data collected through household surveys were first coded and fed into IBM SPSS computer software version 20 for analysis. The descriptive statistical analysis was used in exploring the data for the distribution of responses. Household information was treated according to each village, but sometimes all villages were put together.

4.3 Results

4.2.1 Stakeholders in the CBFM process in establishing VLFRs

Table 4 presents ten different stakeholders participated in the CBFM processes to establish VLFRs in Machemba and Sautimoja villages. The identified stakeholders include government departments/institutions, non-governmental organizations (NGOs), and local communities—people who live in the registered villages (URT, 2007a). These stakeholders did not appear simultaneously, but at intervals depending on the stage of the CBFM process. The first stakeholder was the World Wide Fund for Nature (WWF)—an international conservation NGO which is interested in wildlife conservation and the reduction of human impact on the environment. Initially, the WWF initiated the Ruvuma Landscape Conservation Programme, whose one of the projects, a three-year project

(2014–2017), was to scale up PFM in Tunduru District. The WWF had funds of financing the implementation of the project and thus had strategic power.² It pulled other stakeholders together namely government institutions and NGOs, to fulfill its ambition. The WWF began with approaching the second stakeholder, Tunduru District Council (TDC), a government institution which has structural³ and institutional⁴ powers over all villages; in turn, the District nominated 15 villages to implement the CBFM project.

Table 4: A list of stakeholders, their roles and types of power

Sequence	Stakeholder	Main role	Types of Power
1st	WWF	Financed the project	Strategic
2nd	TDC	Nominated project villages	Institutional and structural
3rd	MJUMITA	Created awareness to villagers about the CBFM	Strategic
4th	Village Councils	Discussed and provided suggestions to a Village Assembly about the project	Institutional
5th	Communities (Village assemblies)	Discussed and approved the project	Institutional and structural
6th	VLUMC	Participated in a PVLUP	Institutional
7th	VNRC	Participated in a forest demarcation and management planning	Institutional
8th	MCDI	Facilitated forest demarcation and management planning	Strategic
9th	Arms on Environmental Limited	Facilitated PVLUP in Machemba Village	Strategic
10th	District Full Council	Discussed and approved FMP and bylaws	Institutional and structural

² Strategic power relates to financial resources (wealth) that the WWF has accumulated to finance the implementation of the PFM project in Tunduru District.

³ Structural power relates to hierarchical relationships between one government department/agency/institution (e.g. District Council) over the other (e.g. villages) as a result of administrative setup.

⁴ Institutional power relates to mandates that the district council has over villages as stated in the laws (e.g. the Local Government Act No. 7 of 1982, Village Land Act No. 5 of 1999 and Forest Act No. 14 of 2002).

Machemba and Sautimoja were amongst the nominated villages. Nomination of the villages paved a way for the participation of a third stakeholder—Tanzania Community Forest Network (in Kiswahili: Mtandao wa Jamii wa Usimamizi wa Misititu Tanzania, MJUMITA), a local NGO interested in conservation of forest resources, governance, and livelihood at the community level. The WWF outsourced MJUMITA to raise awareness about the CBFM and ensure that the VLFRs, which were to be established were governed responsibly. MJUMITA in conjunction with the WWF and TDC, formed a sensitisation team that was responsible for, among others, persuading the communities at Machemba and Sautimoja villages to accept the CBFM project. The sensitisation team visited the villages, where they met the fourth and the fifth stakeholders: the Village Council and villagers (henceforth, the community). The interest of the sensitisation team was to generate revenues from the forest for the villages.

The sensitisation team spoke and educated the Village Council and the community at large about the CBFM and the process of establishing the VLFRs. In every village, an indoor meeting between the sensitisation team and Village Council was held in the office of the village government and chaired by the village chairperson. The sensitisation team addressed the meetings and the Village Councillors listened and asked questions for clarification about the project. Afterwards, Village Councillors were asked whether they would like to proceed with the project or not, and all voted in favour of the project. At the end of each meeting, a sitting allowance of US\$ 2.5 was paid to each Village Councillor who attended the meeting. Later, the village assembly was convened where the sensitisation team came to persuade the community to endorse the project, which they did (see section 4.3.2).

After the project endorsement, the Village Council through the guidance of the sensitisation team nominated community members who formed sixth and seventh stakeholders, namely, the Village Land Use Management Committee (VLUMC)⁵ and the VNRC, respectively. Later, the village assembly approved all nominees. The VLUMC's role was to present the community's interest during participatory village land use planning, an exercise that led to carving out forest area to be the VLFR. In Sautimoja, the VLUMC worked with TDC through the Participatory Land Use Management team. In Machemba, participatory land use planning was carried out in 2013 and was outsourced to the eighth stakeholder—Arms on Environmental Limited—, which is a consulting firm, based in Dar es Salaam.

After carving out the forest area to be the VLFR, the next step in the CBFM process was to conduct forest assessment and management planning (URT, 2007a). In this respect, the VNRC's role was to present the community's interest during the preparation of the Forest Management Plan (FMP)⁶, which according to Part III of the Forest Act No. 14 of 2002 is a pre-requisite for transferring forest management authority to the community (URT, 2002). The VNRC worked together with a team of experts from TDC and the ninth stakeholder—Mpingo Conservation and Development Initiative (MCDI), a local NGO outsourced by WWF to develop sustainable timber harvesting and business plans. The forest management planning involved demarcation⁷ of the VLFR, conducting forest

⁵ The VLUMC is a sub-committee of the Village Council and is established in accordance with Village Land Act No. 5 of 1999 and guidelines for the participatory village land use planning (URT 1999).

⁶ The FMP is a document which details forest management prescriptions for a set period of at least five years. The FMP serves as a guide for sustainable forest management by defining forest management prescriptions and utilization, and milestones for monitoring and evaluation of the management practices; and it provides useful information for the review of policy, legislation and programme.

⁷ *Demarcation* in this context refers to resurveying and marking external boundaries of the proposed VLFR by the use of paint. It involves painting blue all trees found within forest boundaries at the height of about 1.5 m. The activity also involved dividing a proposed VLFR into two Forest Management Units (FMUs): 1) production zone, and 2) protection zone.

inventories, and writing of the provisional FMP, these activities took more than six months. The provisional FMP was then forwarded to the tenth stakeholder—the District Full Council, the highest decision-making body in the District Council on matters related to all villages—for approval. The Full Council consists of all the District’s Ward Chancellors, the District Executive Directors and all Heads of department.

4.3.2 Participation and its level in the CBFM process

4.3.2.1 Pre-sensitisation activities

After nomination of the villages, the village leaders, namely, village chairpersons and Village Executive Officers (VEOs) were invited to attend a project-launching workshop held on 3rd September 2014 in Tunduru Town. The workshop was a typical example of “invited spaces” as it was organised by WWF. At the workshop, village leaders were educated about environmental challenges facing their villages, among them was shifting cultivation and forest fires. They were also informed on how the CBFM initiative could address these challenges and improve local livelihood. They were given examples of villages in Kilwa District, where the implementation of the CBFM has had positive impact on local livelihood, forest governance, and forest condition.

Participation of village leaders in the launching workshop could be likened with informing and therapy—which is a non-participation/nominal in this stage of participation (Arnstein, 1969; Pretty, 1995; White, 1996). It resembles informing because of the objective of the workshop and the way information was disseminated to participants. Essentially, the objective of the workshop was to inform participants about the CBFM initiative, and therefore, in most cases, WWF staff used a one-way channel of communication, that is, from the sender to the receiver through PowerPoint presentations. Village leaders were considered as recipients of information. The workshop resembled therapy in the sense that

the village leaders were treated as patients of a disease of not knowing environmental challenges facing their villages. Organisers' interest in village leaders' participation was largely for legitimising the initiative, while for village leaders it was "response to a call." The workshop served a PFM promotion forum, as immediately after the workshop, organisers uploaded group photos to <http://www.tanzaniatoday.co.tz/news/partnership-to-implement-participatory-forest-management-pfm-in-ruvuma-landscape> titled "Partnership to implement PFM in Ruvuma landscape."

4.3.2.2 Village assemblies during awareness creation (sensitisation meetings)

One village assembly was held in each village on 5th March 2014 and 6th May 2014 in Machemba and Sautimoja villages, respectively. Assemblies were convened in response to CBFM guidelines that require a sensitization team to meet Village Council to establish the extent of villages' interest in the CBFM (URT 2007a). In the morning of the meeting day, the sensitization team met with Village Councillors whereby they briefed about CBFM project and asked their consent to proceed with the CBFM process. In both Machemba and Sautimoja villages, Village Councillors accepted the project, thus the CBFM process started. In the evening of the same day, the sensitization team educated the community about the project, and finally asked them to endorse the initiative. The survey results show that 30 and 20 percent of the population of age 18 years and above in Sautimoja and Machemba, respectively attended the village assembly. The survey results show further that women constituted only 30 and 20 percent of the attendees in Sautimoja and Machemba villages, respectively.

In principle, the assembly was supposed to be a platform through which the community could provide their inputs freely, ask questions, and raise local concerns, which would make all stakeholders eventually arrive at a consensus, better decisions and legitimacy

(Arnstein, 1969). In practice, however, the assemblies were structured and organised in a way that defied participatory principles. Apart from poor attendance by the community members, even members who did attend had little influence on the decision-making process, as the sensitisation team violated basic principles of partnership—negotiation and engagement in trade-offs with local power-holders about the project (Arnstein, 1969).

The sensitisation team's strategy was mainly to ensure that the project was accepted, and therefore most things were presented in the manner that the response from the community should be "YES," which signifies distortion of participation. This strategy include analyzing financial incomes of the CBFM to entice the community with the benefit they would accrue if the CBFM were accepted, while not disclosing the full costs of conserving forests, such as those associated with increased wildlife and their effects on human life and their properties. They also inculcated fear among the community members by telling them that if the project were not accepted, it is the TFS who would continue to benefit from the forest. All these are typical characteristics of manipulation whereby intervention is not either discussed or described in more open and general terms in a meeting (Arnstein, 1969, Pretty, 1995).

During group discussions, it was also revealed that the assemblies were turned into vehicles of a one-way flow of information—from the sensitization team to the community, which implies non-participation (Arnstein, 1969; Cornwall, 2008; Pretty, 1995). The team's interest was therefore seeking project legitimacy from the community —using the village assemblies as rubber stamps to endorse the already made decisions. As one participant in Machemba village indicated:

“The Village Council decided in the office, then they convened the village assembly to inform us that they have accepted the project, and therefore they wanted us to endorse it”.

Legitimising the decision involved writing attendees’ names and signatures in the register book, which was attached with the minutes of the meeting and handed to the sensitisation team for reference.

The decision to proceed with the CBFM process was made in the village assembly, after the majority of the attendees voted in favour of the project.⁸ Nevertheless, not all community members, even those who attended the assembly, agreed with the decision, which in principle denies the establishment of the VLFR. For example, elders in Machemba reported to have been excluded in the assembly, as they were not given special consideration of sharing their views, and when they raised hands the youth ignored these elders’ inputs. One elderly participant in Machemba Village had this to say:

“We normally attended the meeting to listen what they discussed, we could not contribute anything because we are illiterate. Youths and leaders are the ones who spoke”.

This observation is consistent with observations made in the focus group discussions in both villages, whereby all key speakers (people who dominated discussion in the assemblies) happened to be youths. Similarly, one youth also the Village Councillor in Machemba made the following observation to confirm that elders were ignored:

“If we listened to elders during the sensitisation meeting, we could not have the VLFR now. In the past, this village had a huge forest, a large part was cleared to

⁸ The voting method used was acclamation (all those in agreement say "aye and all those opposed say "nay").

plant crops, but villagers are still poor. Now is our time to bring changes, and therefore elders should respect our decision instead of blaming us”.

These extracts suggest that during sensitisation meetings, the consensus was never reached across different social groups (e.g. elders and youth) within the community concerning the viability of CBFM project in the respective villages. This implies that interests of different groups were not addressed because there was not enough time for discussion before making a final decision. This implies further that one group seems to be most powerful of all the other groups and therefore suppressing the rest of the groups during discussions. In both villages, the interests of elders did not match with those of the youth concerning forest resources. The interest of the youths was revenue generation through selling of timber. A youth in Machelamba put it this way:

“There were bigger trees in our forest, but timber dealers harvested most of them without paying a cent to the village government”.

On the other hand, the interest of elders was land for crop production, especially maize. In the same village, one elderly participant had this to say:

"We are harvesting nothing nowadays because we are cultivating in Mavundu (fallows), which are already exhausted, and we cannot afford to buy inorganic fertilisers. The land, which we thought could be used to establish new farms, was given to an investor who turned it to Maliasili (forest reserve). Now we are worried because we don't know where our grandchildren will cultivate”.

4.3.2.3 Formation of the Village Natural Resource Committee (VNRC)

On 15th March and 6th May 2014, village assemblies were convened in Machelamba and Sautimoja villages respectively to elect members of the VNRCs. As per the survey results,

the attendance at the assemblies was 27 percent in Sautimoja and 32 percent in Machemba. In addition, 56 percent of those who attended were between 18 and 49 years of age. Two different approaches were used to elect the VNRC members. In Machemba, the VNRC members were directly elected through the village assembly. Fig. 6 shows attendance of different socio-economic groups in the election of members of VNRC in Machemba Village. In Sautimoja, the VNRC members were first nominated by Village Councillors, and nominees were presented in the village Assembly for approval. Fig. 7 presents the percentage of the respondents from different socio - economic groups who were at the meeting when VNRC members were approved in Sautimoja Village.

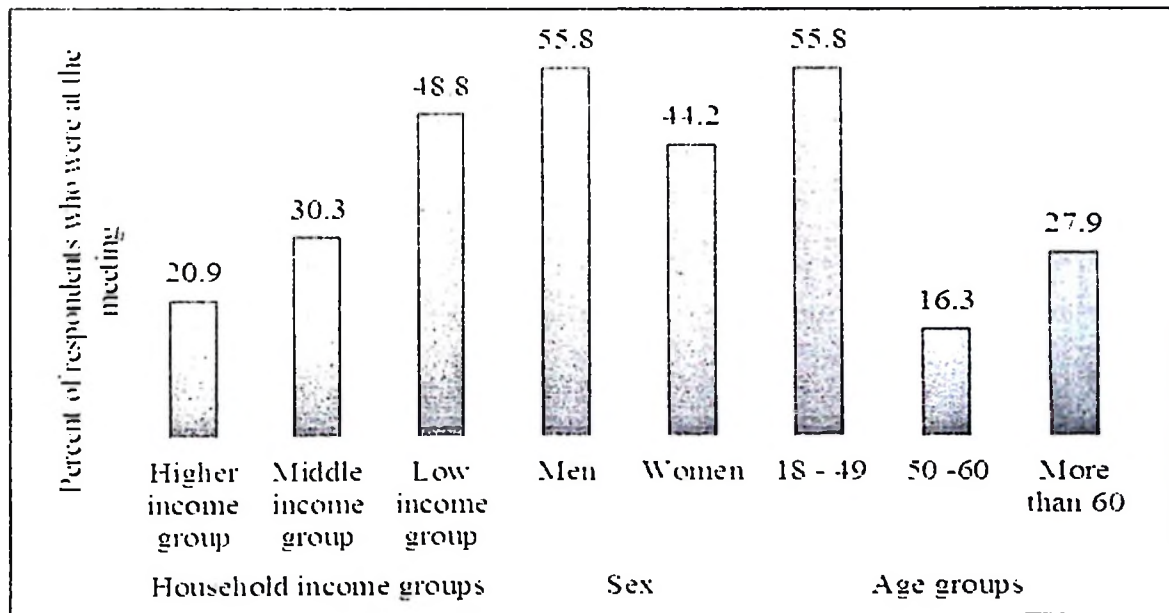


Figure 6: Percentages of the respondents who attended the election of VNRC in Machemba Village

(Source: Own Survey Data, 2016)

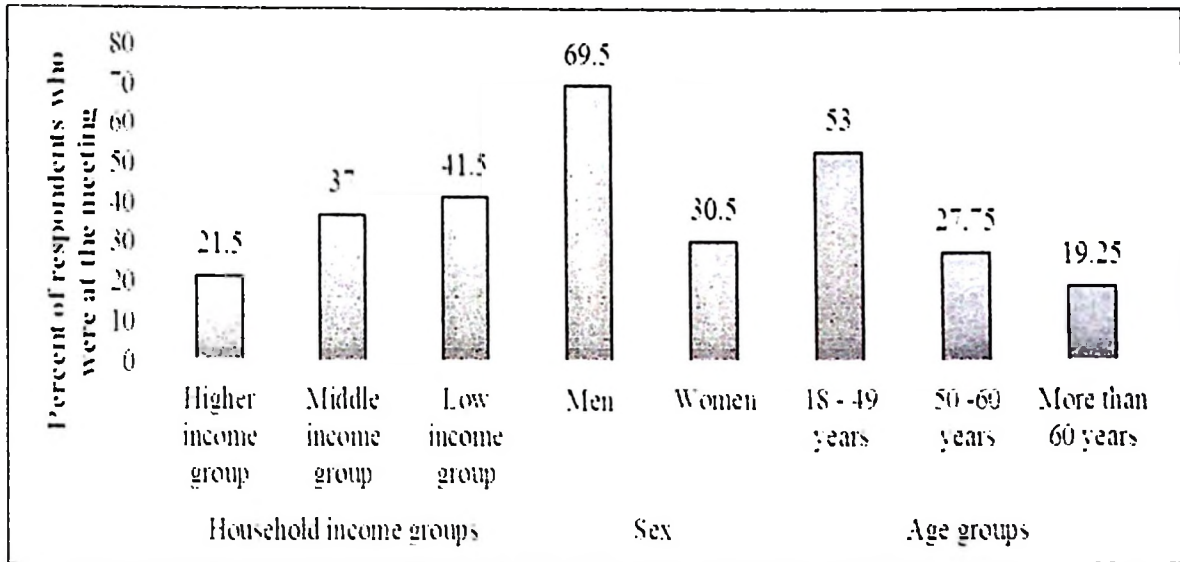


Figure 7: Percentages of the respondents who approved the nomination of VNRC members in Sautimoja Village

(Source: Own Survey Data, 2016)

Regardless of the approach used, VNRC formation was often based on expert advice from the sensitisation team, considering gender, literacy and age (18 to 40 years). For instance, in Sautimoja, the community members participated in the village assembly were encouraged to approve the nominees, because the Village Councillors had spent enough time scrutinising each candidate based on gender, education, and age, as advised by the sensitisation team. Consequently, all nominees were approved without objections, as the community considered the instructions given as orders from the power-holders (i.e. the TDC and NGOs). In view of this trend, some villagers believed, and rightly so, that the village assemblies were used as rubber stamps of legitimising the nomination.

During the survey, it was reported that Village Councillors used 'expert advice' strategically to favour their relatives. One Village Councillor in Sautimoja Village pointed out the following:

"Village leaders who were in the study tour in Kihwa District told us that VNRC are getting paid when they participate in forest activities such as patrols. Therefore, I decided to recommend my daughter as they did other councillors. Now I see the benefit, because during training she brings home some sugar".

Similarly, a VNRC member said:

"I was nominated by my husband to be a VNRC member because he was sub-village chairperson".

Furthermore, a VLUMC member said:

"I always blame my father for not nominating me to be a member of the VNRC while he was in the meeting as a councillor. Other councillors nominated their close relatives in the VNRC, and now they are enjoying the fruits".

Confirming nepotism, one woman who is non-native to Sautimoja Village said:

"I did not attend the village assemblies, because I knew they wouldn't appoint me in any committee, as I had no close relative in the Village Council. All positions in important committees in this village like the VNRC is for Wazawa (natives) and not for us, Wakuja (immigrants)".

4.3.2.4 Identification of the forest area to be the VLFR

A Participatory Village Land use Planning (PVLUP) exercise was carried out to earmark forest area for VLFR on the village land. At Machemba, the exercise was led by the consulting firm Arms on Environmental Limited, while in Sautimoja it was led by the District Participatory Land-Use Management (PLUM). The PVLUP involved calling the

two village assemblies. The first assembly had three agendas: 1) informing community members about the objective of the PVLUP, 2) explaining its importance, and 3) formation of the VLUMC.

The VLUMC members together with experts started the actual PVLUP, as they were supposed to defend the community's interest, and therefore to have some influence. However, they did not do so in actual practice, as experts dictated most of the things, including the size and location of the VLFRs. The PVLUP exercise was carried out purposively to meet the *de facto* requirements in the establishment of a WMA⁹ for Machemba and VLFR for Sautimoja. The NGO staff during an interview said:

“We are supporting land use planning in our project villages, but before commencing we must be satisfied that the village has the potential of implementing CBFM project. In the beginning, the district identified 15 villages, but we dropped some after realizing that they either had no forest or had severely degraded forest”.

The participation of the VLUMC was largely for legitimacy seeking that the exercise was participatory and inclusive, while in reality it was rushed and manipulated. The exercise was carried out for only five days in Machemba and six days in Sautimoja village. The second village assembly was held on 13th October 2013 and 3rd July 2014 in Machemba and Sautimoja villages respectively, for the approval of land use plans. Table 4 presents attendance of different socio – economic groups.

⁹ The participatory village land use plan in Machemba was carried out in 2013, the objective being to carve out village land to be annexed in the Chingoli Wildlife Management Area (WMA) (Amanzi *et al.*, in press). When the process of annexing the village in the WMA failed to materialize, the objective became to establish a village land forest reserve.

Table 5: Percent of respondents who were at the meeting

Attributes	Sautimoja		Machemba		Total	
	Yes	No	Yes	No	Yes	No
Higher income group.	22.2	14.3	17.4	7.8	19.8	11.05
Middle income group	55.6	23.8	26.1	15.6	40.85	19.7
Low income group	22.2	61.9	56.5	76.6	39.35	69.25
Total	100	100	100	100	100	100
Men	66.7	42.9	60.9	49.4	63.8	46.15
Women	33.3	57.1	39.1	50.6	36.2	53.85
Total	100	100	100	100	100	100
18 - 49 years	55.6	71.4	58.7	76.6	57.15	74
50 -60 years	33.3	4.8	17.4	7.8	25.35	6.3
More than 60	11.1	23.8	23.9	15.6	17.5	19.7
Total	100	100	100	100	100	100

(Source: Own Survey Data, 2016)

Although the plans were approved, community members expressed their discontent in different ways. In Machemba, for instance, some villagers decided not to attend the second village assembly, because they did not want their names to appear in the minutes.

In the section of emerging issues, the plan stated:

"Despite the many efforts of the VLUMC and Village Council to convince villagers to attend the final meeting for approving the VLUP, they rejected it for the reason that it will legalise the creation of WMA on their village land, which is opposed by some villagers. Such a situation shows that villagers were not well educated on the importance of creating WMA in their village" (Machemba land use plan, 2013).

4.3.2.5 Demarcation and declaration of the VLFR

In both villages, the demarcation of the VLFR was carried out by four experts (from MCDI and TDC) in collaboration with the VNRCs; together they formed a Participatory Forest Resources Assessment (PFRA) team. Since the VNRCs were *de jure*

representatives of the entire community, their role was to represent and defend local communities' interests in the demarcation and forest management planning (URT, 2005, 2007a). This implies that they were responsible for making sure that the demarcation of the proposed VLFRs follows the approved boundaries as shown in the approved village land use plans.

In actual practice, however, the exercise was led by experts from TDC and MCDI, while VNRCs became passive participants. The latter were assigned manual work such as painting trees earmarked by the crew leader (expert) and carrying extra paint tins. Interviews with VNRC members revealed that VNRCs were not aware of the route in advance, because experts controlled the planning process. One VNRC member said:

“Of course, experts led the activity, because they had a map of the proposed VLFR. We received instructions from them on what to do, and we did as they instructed us”.

The domination of experts during the demarcation of the proposed VLFRs was reported in all the villages. It was reported that, the maps of the forest areas to be VLFRs, which were prepared during participatory land use planning, were partially followed, and included land reserve without the consent of the village assemblies. Interviews with VLUMC members and ordinary villagers indicated that during land use planning they agreed to set aside 4242.94 Ha in Machemba and 19961.5 Ha in Sautimoja Village. Surprisingly, the demarcation of the VLFR in 2014 did not follow the predefined boundaries earmarked during land use planning. The PFRA team extended the proposed VLFR by annexing land reserve, and thus increasing the size of the VLFR to 4612 Ha in Machemba and 21 966 Ha in Sautimoja. The decision was reached without consultation with village assemblies and Village Councils. During interviews with VNRCs, it was revealed that even though the

demarcation process was inclusive, it was not participatory. When asked as to why this was the case, while VNRCs were part of the demarcation team, one member had this to say:

"We had no voice in the exercise. Experts held GPS in their hand, and we held tins of paints and brushes; they showed us the route to go and showed trees to paint. There was no room for discussion about the route".

After the demarcation of the VLFR, the PFRA team continued with the next step of CBFM, which includes, the assessment of the forest resources and preparation of the FMP (+ harvesting plans) (see Amanzi in press). The exercise ended with the production of the FMP. On 6th March and 27th February 2015, in Machemba and Sautimoja villages, respectively, the village assembly held meetings to approve the FMP (Table 5). In these meetings, some of the community members in Machemba raised the issue of new boundaries of the proposed VLFR that extended to the land reserve. Those who raised the matter, wanted to maintain the forest boundaries of 2013. This implies that they opposed the inclusion of their reserved land into the VLFR. Experts responded by telling that villagers have the authority of changing the plan, including revoking part of the reserved land that was annexed into the VLFR. However, they did not explicitly explain the legal procedures of revoking part of the declared VLFR.

Table 6: Percentages of respondents who attended the meeting

Attributes	Sautimoja		Machemba		Total	
	Yes	No	Yes	No	Yes	No
Income group						
Higher income	16.7	16.7	17.1	8.5	16.9	12.6
Middle income	50	22.2	24.4	17.1	37.2	19.65
Low income	33.3	61.1	58.5	74.4	45.9	67.75
Total	100	100	100	100	100	100
Sex						
Men	58.3	44.4	56.1	52.4	57.2	48.4
Women	41.7	55.6	43.9	47.6	42.8	51.6
Total	100	100	100	100	100	100
Age group						
18 - 49	50	77.7	56.1	76.8	53.05	77.25
50 -60	25	5.6	14.6	9.8	19.8	7.7
More than 60	25	16.7	29.3	13.4	27.15	15.05
Total	100	100	100	100	100	100

(Source: Own Survey Data, 2016)

The experts' promised that the village has the ultimate authority over the VLFR, including revoking it, this mitigated villagers' anger, and eventually the village assemblies approved the FMPs. Village Chairpersons and Village Executive Officers signed the document and submitted it to the Full Council meeting for approval. The Full Council meeting approved the plan, and that the VLFR was declared" by the Village and District Council, and this paved the way for the implementation of the plan. The District Forest Officer (DFO) registered the VLFRs in the District Register of Forests. The village assemblies held meeting On 16th and 9th June 2015, in Machemba and Sautimoja villages respectively to inform community members that their VLFRs were declared and to hand over the approved FMP for the implementation of forest management activities.

4.4 Discussion

The results have shown the difference between what stated in guidelines and actual practices in the field with respect to participation of local communities in the establishment of VLFRs. The guidelines requires local communities to arrive at a consensus in every step, including endorsement of the CBFM project, election of VNRC, demarcation VLFR and approval of the FMP in order to attain optimal participation. In the actual practice, however, the guidelines were little or partially followed because of limited funds to involve every member of the community (see Mubita *et al.*, 2017). The funds were needed to cover expenses of experts who facilitated the CBFM process. Consequently, the process was less inclusive and participatory as stated in the guidelines. In such situation, caused the process to establish VLFR to be considered as top-down approach, which is contrary to the government's circulars, guidelines, policies, decrees, and laws that promote bottom-up natural resources management approaches. The results compare well with the weaknesses observed in the establishment of WMAs (see Igoe and Brockington, 2007; Loveless, 2014; Moyo *et al.*, 2016).

This study has shown that several strategic interventions were used by different stakeholders and experts during the CBFM process, which defy principles of genuine participation. Firstly, the use of strategic power by providing financial incentives to village leaders and committee members impaired a fair and democratic decision-making system at the village level. The incentive divided the community into village leaders and committee members on one side and ordinary villagers, who comprise different socio-economic groups, on the other side. The former group turned the project into an opportunity to earn income. Therefore, they formed an alliance with external stakeholders to further their conservation agenda. Consequently, during village assemblies, the ordinary villagers—were sandwiched between village leaders, committee members, and external

stakeholders. Participation of ordinary villagers in decision making about the affairs of the village through village assemblies became nominal (see White, 1996) or lacking (see Arnstein, 1969). Ordinary villagers mainly served as rubber stamps of what had previously been decided. This finding is consistent with the finding of studies (e.g. Igoe and Croucher (2007); Loveless (2014), Kicheleri *et al.*, 2018), who report that village leaders in Minjingu Village formed an alliance with Babati District officials to annex the village in the Burunge WMA.

The second was direct involvement of the Tunduru District Council has made some community members in villages to perceive that the CBFM project is *Mradi wa Serikali* (the government project). Because of being administratively subordinate to the District Council, community members had little room to question the government initiatives, thus made them to accept the CBFM project.

The findings show further that the project was accepted with a false promise and malpractice of participatory principles. The false promise was that the forest would generate revenue, and not otherwise. This is considered a false promise because many villages with declared VLFRs are severely challenged financially because of the difficulty of attracting timber buyers (see Gross-Camp, 2017; Sungusia and Lund, 2016). Malpractice was revealed in two ways. The first was the manipulation of the process through over-representation of allies of the socio-economic groups within the community who are the proponents of the conservation agenda (i.e. village leaders and committee members) in the village assemblies, as opposed to ordinary villagers. This was done in a crafty way, through convening indoor meetings and village assemblies on the same day. Allowances were provided as incentives to village leaders and committee members to attend indoor meetings held in the morning. In the evening, these village leaders and

committee members attended village assemblies to influence and manipulate the voting process in favour of the CBFM project. It has been further observed that allowance were provided to promote nepotism and produce conservation elites who would later dominate project implementation (see Agrawal *et al.*, 2005; Green and Lund, 2015; Mathews, 2011; Nightingale, 2005; Ribot, 2002).

Secondly, the manner in which village assemblies and indoor meetings were organised and operated made it difficult for villagers to raise their voices, ask questions, or discuss different pertinent issues. In this regard, the experts defied participatory principles by transforming invited spaces of participation into arenas of informing, educating, and persuading villagers to accept the intervention, instead of providing space for the villagers to raise their voices democratically and in a participatory manner. The experts' efforts were often characterised as manipulative; for instance, analyzing financial benefits to entice the community members to accept the CBFM project while withholding the related costs (see also Loveless, 2004). Based on these facts, local communities' participation was nominal (Arnstein, 1969; Pretty, 1995; White, 1996). The external stakeholders' interest of inviting local communities into the so-called participatory meetings was mainly for legitimating the intervention (White 1996). This relates to the observations by other scholars (e.g. Igoe and Croucher (2007), Goldman (2003, 2011) and Loveless (2014) in the establishment of WMA in northern Tanzania.

In the establishment of the committees, the representation of VLUMC and VNRC was limited by gender. The process excluded elders (people older than 40 years) and illiterate (Green and Lund, 2015), which is contrary to the requirement of the forest law, the CBFM guidelines, and experts' opinion. In such a situation, the diverse interests of different socio-economic groups about the forest were not represented in the committees.

It has further been found that the establishment of the committees was meant to pave the way for representative democracy in the remaining CBFM steps (URT, 2005, 2007a). Unfortunately, it has been observed that external stakeholders placated and manipulated the committees strategically to reinforce a conservation agenda. In principle, the committees were responsible for protecting the interests and rights of the community members in the planning process. In practice, however, because of lack of expertise and ignorance of forest regulations, community members were manipulated to promote the conservation agenda of the external stakeholders. The committee members were invited to participate in a planning process along with experts; however, they (committee members) became passive participants. They were given manual work in return for an allowance (US\$ 5 per day), while the experts dictated the size of the VLFR and its boundaries.

In addition, the external stakeholders used training as a vehicle for promoting their conservation agenda—principally, training aimed at empowering committee members to participate actively in planning and implementation of the CBFM (URT, 2007a). It was found out further that experts used these trainings strategically to adjust values and attitudes of committee members towards conservation as opposed to those of the larger society. Through training, the committee became deeply assimilated into conservation, and hence they diverted from representing the interests of the socio-economic groups within the community and started to applaud the so-called experts' advice as they used conservation narratives strategically to neutralise the concerns of the community. Essentially, they said, the “expert advice” that this land has the potential for conservation has robbed the villagers of their freedom of making free and rational decisions about their fate on the village land. Similar findings are reported in CHAPTER V (MANUSCRIPT II), where conservation agencies enrolled Machemba Village in three different CBC interventions to secure village land adjacent to Selous Niassa Wildlife Corridor.

The findings revealed further that external stakeholders facilitated the establishment of the VLUMC to meet the *de facto* requirement in carrying out participatory village land use planning. The committee became redundant immediately after the exercise of setting aside the VLFR was completed. This is contrary to the land laws that describe the committee as an overseer of the village land on behalf of the village council (URT, 1999).

4.5 Conclusion and Recommendations

This paper illustrates how local communities were involved in what was considered as a participatory process in creating VLFRs in the two villages of Tunduru District in Tanzania. The findings show that there was no genuine intention of providing a space for the different socio-economic groups within the community to raise their voices, and to express their interest in the establishment of the VLFR. The idea of establishing the VLFRs originated from external stakeholders, who then, through strategic, structural and institutional powers, forged a way to advance their conservation mission and goals. At the village level, local communities were manipulated and conned, and finally the project was endorsed. The CBFM process has never been under the community's control, as it has been required; in most cases, it involved manipulation, informing and therapy, which implies non-participation. The minority—village leaders and committee members (mainly VNRCs and VLUMCs) — who were included in participatory planning, their participation was based on material incentives and deliberately an alliance formed with external stakeholders (i.e. NGO and District Council) to endorse the project in order to sustain personal financial gains. Thus, the study concluded that the entire community in the study villages did not legitimise the establishment of the VLFRs, and there was either optimal or genuine participation.

The CBFM was manipulatively accepted because it would bring revenue to the villages through the selling of forest produce. If the anticipated financial benefits would not be realized in time, the community may lose patience. Such a move is considered detrimental to sustainability, as it may drive the community to undertake illegal activities and threaten the attainment of the CBFM goals of specifically improving forest governance, livelihood, and forest conditions. It is argued that for effective implementation of the VLFRs should fully involve learning and dissemination processes and therefore requires active participation of local communities. Genuine or optimal participation requires consideration and provision of enough time, information and freedom to discuss the interests of every socio-economic group about the forest found in village land, in different platforms. This can be achieved through creating a partnership between local communities and expert in order to share planning and decision-making responsibilities (see Arnstein, 1969). Along with, by instituting forest law and guidelines for VLFRs that would stipulate the best way to accommodate the interests of every socio- economic group within the community during decision-making processes, and this should be reflected in the actual practice.

In addition, there should be a representation of different socio – economic groups in the committees - VNRC and VLUMC, who are capable of representing the interests of their group rather than limiting representation by age, gender, and literacy. Thus, identification of different socio-economic groups (stakeholders analysis) and their interests should be included in the CBFM guidelines that inform practices.

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CHAPTER FIVE

5.0 MANUSCRIPT II: Caught in the middle: Donor funding, conservation politics and struggles over land in Machemba Village, Tanzania

Abstract

Current conservation emphasizes territorial expansion beyond traditional protected areas to safeguard boundless spaces for wildlife and bring more forests under the reserved estate. Territorial expansion in Tanzania is pursued through Wildlife Management Area (WMA), and through Community-Based Forest Management (CBFM). These two approaches are pursued by different institutions that compete over authority to claim and set aside village land as a WMA or as a village land forest reserve. This competition is shaped by changing priorities of international donor financing for conservation and shifting institutional landscapes and political priorities in the Tanzanian government. This study is tracing the struggles of a village in navigating this complex and changing legal and institutional landscape to maintain authority over village land. The village is facing pressures from different conservation actors to set aside parts of it for forest or wildlife management. The struggles documented are indicative of a complex politics of conservation and the significant challenges this presents to rural communities that are situated in the targeted areas, in the name of environmental conservation. While policy makers and conservation practitioners are envisioning a world of large-scale area-based interventions to achieve globally tracked targets, the reality of doing this work defies the notion of community-based, consensus-oriented, participatory, and apolitical spaces where global ideas can be implemented simply and smoothly.

Keywords: *Tanzania, Selous-Niassa Wildlife Corridor, Wildlife Management Area, Community Based Forest Management, land claims, politics of conservation*

5.1 INTRODUCTION AND BACKGROUND

5.1.1 Introduction

Since 1990, the share of earth's terrestrial surface under conservation has grown from approximately 8 to 15 percent (UNEP-WCMC and IUCN 2016). The Aichi Target 11 aims at bringing up this share to 17 percent by 2020, and some conservationists are pushing for a Global Deal for Nature whereby half of the planet's terrestrial realm would have to be set aside for conservation (Dinerstein *et al.*, 2017). Increasingly, the growth in conservation areas happens through landscape conservation approaches that seek to ensure connectivity between the existing core protected areas, through identification, and the conservation of buffer zones and corridors, often through Community-Based Conservation (CBC) approaches (Laffoley *et al.*, 2017). According to its proponents, this approach of conservation promises to create the conditions whereby populations of plants and animals can thrive in large-enough territories in contexts of shock, changing trends and climatic variation. Thus, CBC is embraced to counter the perceived habitat fragmentation and to create connectivity for wildlife and biodiversity at the landscape scale (Bluwstein, 2018). Through CBC, area-based conservation is expanded beyond individual protected areas (Laffoley *et al.*, 2017).

In Tanzania, CBC models can be roughly classified into Community Based Forest Management (CBFM), which is implemented through the establishment of a Village Land Forest Reserves (VLFR), and Community-Based Wildlife Management (CBWM), which is implemented through a Wildlife Management Area (WMA). Over the past decade, these CBC models have underpinned the emergence of large-scale landscape conservation initiatives in Tanzania. Examples of these include the World Wide Fund for Nature's conservation activities in the so-called Ruvuma Landscape Conservation in southern Tanzania and African Wildlife Foundation's conservation activities in the Tarangire-

Manyara Ecosystem (or the Massai Steppe) in northern Tanzania (now led by the Northern Tanzania Rangelands Initiative). Others include, Wildlife Conservation Society's conservation activities in the Ruaha – Katavi landscape and the Southern Highlands, Jane Goodall Institute, which focus on conserving the Gombe-Masito-Ugalla ecosystem through REDD+, and CARE Tanzania' activities in the Uluguru Landscape. Along with many others, these efforts constitute a massive effort of expanding the share of Tanzania's territory under different forms of conservation beyond the present ~42 percent (Bluwstein *et al.*, 2018).

CBFM and CBWM are not without implementation challenges; neither can they escape the politics of conservation. For more than a decade, political ecological research has demonstrated how WMAs are besieged by contestations, unrealistic expectations and inflated promises (Igoe and Croucher, 2007; Benjaminsen *et al.*, 2013; Bluwstein *et al.*, 2016; Bluwstein and Lund, 2018). Of late, this trend has led to the conclusion, even among donors and policy makers, that WMAs are socio-economically not viable in most circumstances in Tanzania (Williams, 2018). Similarly, the establishment of VLFRs across Tanzania has been characterized by techno-bureaucratic and donor driven approaches to land use planning and forest management, which have hampered the implementation, disincentivized forest conservation, and have led to unfavorable cost-benefit ratios for villages that have established VLFRs (Scheba and Mustalahti, 2015; Sungusia and Lund, 2016; Lund *et al.*, 2017).

Despite the documented challenges in the implementation, the territorial expansion of conservation across the Tanzanian rural landscape continues unabated. The expansion drive is advocated by the neoliberalization of conservation that has led to new partnerships and funding for conservation (Igoe and Brockington, 2007), by the national political

imperatives leading to recentralization of land and resource control (Benjaminsen *et al.*, 2013), and by concerns over the territorial integrity of protected areas¹⁰. Specifically, the establishment of the Tanzanian Forest Service (TFS) Agency in 2010/11 has led to the consolidation of more than 500 central government forest reserves under its authority (TFS, 2017). In practice, the efforts at ‘boundary consolidation’ through re-surveying, clearing, and demarcation of forest reserve boundaries have led to a *de facto* expansion of reserved territory and evictions of rural dwellers (The Citizen, 2017a). Similarly, there have been periodic efforts on behalf of Tanzania National Parks Authority (TANAPA) and the Wildlife Division¹¹ to ensure the territorial integrity of national parks and game reserves, which have led to the expansions and new claims to village land in the name of conservation. The confluence of these developments leads to a complex politics of conservation in which different actors may lay claim to the same lands in the name of conservation.

The complex politics, which is generated by the confluence of conservation claims, and the challenges it presents to rural communities seeking to maintain authority over their village land, are what are highlighted in this study. While the study acknowledges the existing burgeoning literature on community-based natural resources management in Tanzania, this study illustrates an emerging and yet overlooked dynamic, where different actors, who are sometimes competing over the same area of land, pursue conservation in opportunistic ways. Empirically, the study thus covers interventions related to the conservation of both forests and wildlife. The current study differs from previous studies on conservation in Tanzania that have tended to focus on either wildlife conservation or

¹⁰ <http://www.thecitizen.co.tz/News/Survey-planned-for-400-villages-around-parks/1840340-4494102-wadoyx/index.html> Survey planned for 400 villages around parks, 2018.04.23, The Citizen.

¹¹ TANAPA – Tanzania National Parks authority, in charge of National Parks; Wildlife Division of the Ministry of Natural Resources and Tourism, in charge of Game and Forest Reserves

forestry. However, under the umbrella of corridor and landscape conservation approaches, different conservation actors may promote forest and wildlife conservation in the same area, often in parallel, and at times in competition with each other, which implies that they must be studied together.

5.1.2 Background - Conservation in Southern Tanzania

In the 1990s, CBC in Tanzania gained traction when the government enacted decentralization policies and laws allowing local communities living in or adjacent to forest and wildlife areas to participate in the management of these forest and wildlife areas (URT 2002, 2007a). Through CBFM, non-reserved forests on village land were declared as VLFRs. Wildlife Management Areas (WMAs) were established across several villages by setting aside parts of village land for wildlife protection. By 2012, official CBFM statistics indicated that 1 233 villages with 24 000 km² of forests were engaged in CBFM all over Tanzania. However, only 509 of these had registered their VLFRs, implying that many forests included in this statistic represent CBFM 'in progress' (Lund *et al.*, 2017). Around 20 WMAs are currently in operation (covering around 30 000 km²) and another 18 are planned for - or underway - to cover an additional 95 000-106,000 km² (Bluwstein *et al.*, 2018).

The Ruvuma Landscape conservation program targets a huge area of approximately 280,000 km² across Ruvuma, Mtwara, Morogoro, and Lindi regions in Tanzania and Niassa and Cabo Delgado Provinces in Northern Mozambique (WWF, 2014). This landscape initiative is constructed around Africa's biggest game reserve, the Selous, and harbors numerous forest reserves and several Wildlife Management Areas (Baldus, 2009; Baldus and Hahn, 2009). The Selous–Niassa Wildlife Corridor plays the central role in this landscape initiative. The corridor is meant to connect Selous Game Reserve and

Niassa National Reserve. The idea of securing connectivity within the Ruvuma landscape dates back to the 1980s when the German Technical Cooperation Agency (GTZ) funded the Selous Conservation Program to create buffer zones south of Selous. In 1990s, the German Government financed research on the distribution and movement of wildlife between the two game reserves of Selous and Niassa (Hofer *et al.*, 2004). The research involved several actors, including Tanzania Wildlife Research Institute (TAWIRI), Sokoine University of Agriculture (SUA), Berlin Institute for Zoo and Wildlife Research (IZW) and German-funded Selous Conservation Programme (Hofer *et al.*, 2004; Mpanduji, 2004). Through these efforts, the so-called Selous-Niassa Wildlife Corridor came into being (Bluwstein and Lund, 2018).

Inspired by the research efforts, national and foreign agencies - including GTZ, United Nations Development Programme-Global Environment Facility (UNDP/GEF), World Wide Fund for Nature (WWF), United States Agency for International Development (USAID) - provided funds to initiate corridor based landscape conservation interventions (Noe and Kangalawe, 2015; Bluwstein and Lund, 2018). For instance, in 2005 GTZ and the UNDP provided USD 2 million to support the establishment of WMAs, and in 2008 another USD 6.5 million was commissioned for a WMA project (Picard, 2010). The objective of these interventions was to secure the area between the Selous and Niassa Reserves through the establishment of WMAs and arrest habitat fragmentation, conserve wildlife, and improve local livelihoods. The interventions targeted previously established buffer zones on village land (called village Wildlife Management Areas) and resulted in the establishment of five Wildlife Management Areas under the new WMA policy and regulations: Nalika WMA with ten villages (registered in 2007); Kisungule WMA with three villages (2012); Chingoli WMA with four villages (2012); Mbarang'andu WMA

with seven villages (2006); and Kimbanda WMA with five villages (2012) (Picard 2010; Bluwstein and Lund, 2018).

In parallel to the focus on wildlife, forest-based initiatives entered the fray. Since 2007, Tunduru District Council introduced participatory forest management initiatives under the auspices of a World Bank funded program ‘Tanzania Social Action Fund phase II’ (TASAF II). Through CBFM, the process of declaring the VLFRs on village land under the TASAF II program started. In parallel to CBFM initiatives, since 2010/11, the Tanzania Forest Service has sought to consolidate the central government forest estate through boundary revision, and at times, expansion of old forest reserve. Presently, both wildlife and forest management interventions are targeting the south of the corridor towards the Ruvuma River, an area which is claimed to suffer from unplanned agricultural expansion and forest clearing, illegal hunting, mining development and road development, which ostensibly jointly cause habitat degradation and fragmentation¹².

5.2 Study area and methods

5.2.1 Study Area

The study was conducted in Machemba Village, Tunduru District in Southern Tanzania (Fig. 8). The village became one of the six sites, which the Tunduru District Council targeted in 2007, when the council received USD 130,000 through the TASAF II program to implement Participatory Forest Management (PFM) (TASAF, 2007). Machemba Village is situated 40 Km west of Tunduru town, in Kidodoma Ward, Tunduru District in Ruvuma Region.

¹² <http://www.tzwildlifecorridors.org/corridors/selous-niassa>

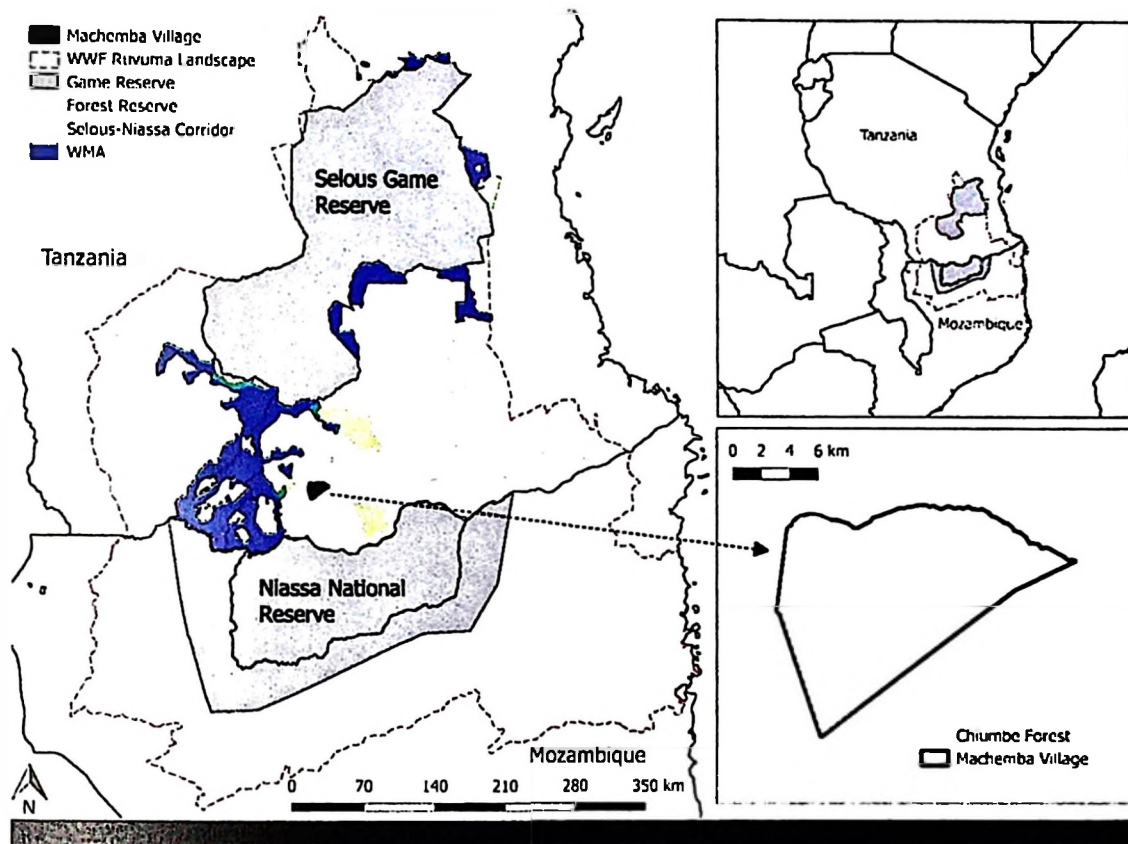


Figure 8: A map showing location of Machemba Village

The village land consists of an area of approximately 18,000 Ha. At the time of study, Machemba had nine sub-villages and a population of around 2,300 people distributed across approximately 600 households. Machemba's Chiumbe Forest is situated in the western part of the village (Fig. 8). This village forest borders the state-run Sasawara Forest Reserve that is managed by TFS, an agency under the auspices of the Ministry of Natural Resources and Tourism (MNRT). Sasawara Forest Reserve is part of the so-called Sasawara - Lukumbule elephant route, which is believed to be used by animals to migrate to and from both Selous and Niassa Game Reserves (Hofer *et al.*, 2004). In the subsequent sections, the study recount how various conservation actors seek to lay claims on parts of Machemba Village land and its Chiumbe Forest in the name of conservation, and the

politics and local challenges engendered thereby (see Table 6 for a summary of CBC interventions targeting Machemba Village).

Table 7: CBC interventions in Machemba Village from 2007 to 2017

Project name	Funding and implementing actors	Project purpose	Project period
Participatory Forest Management (PFM)	Funding: World Bank (WB)/International Development Association (IDA) Implementers: Tunduru District Council through TASAF II	Forest protection, and improvement of livelihood for forest adjacent communities	2006/7-2009
Extension of Chingoli WMA	Funding: GTZ, JBG/WCST, and WWF Implementers: Selous-Niassa Wildlife Corridor Project (SNWCP)	Expansion of Chingoli WMA with seven villages	2013- to date
Scale-up PFM in Tunduru District under Ruvuma Landscape Programme	Funding: SIDA Implementers: WWF Tanzania in collaboration with Tunduru District Council	Improvement of forest governance and local livelihoods through taking control of, manage and benefit from Miombo woodlands	2014-2017

(Source: Own Survey Data, 2016)

5.2.2 Methods

The study is based on the extensive fieldwork by the researcher who spent six months from October 2015 to March 2016 in and around Machemba Village. In this village, he participated in and observed village assemblies and other meetings where natural resource related issues were discussed, training was provided by the implementing organizations to village-level officials who would become responsible for forest management and administration under CBFM and WMA. Primary data were supplemented with information from grey and published sources including official reports and records

gathered from village government office. These include reports of Village Land Use Plans, Forest Management Plans, minutes of the meetings, and training materials.

Furthermore, six focus group discussions were conducted with different groups in the village. These include sub village chairpersons, village councilors, ordinary villagers, Village Land Use Management Committee members, Village Natural Resource Committee, and Village Game Scouts. In addition, formal and informal interviews were also conducted with key informants within and outside the village. These include village leaders, forest and wildlife officers, TFS officers from Tunduru District, and NGO staff.

Content analysis was used to analyze qualitative data collected through individual interviews, participant observations, and focus group discussion. The objective was to reduce the volume of recorded information or communication to a set of categories that represent some characteristics of the variables.

5.3 Results

5.3.1 The First Attempt at Creating a VLFR in Mchemba Village

In 2006/7, Tunduru District was one of the 25 districts, which were chosen to receive funding from the World Bank through an International Development Association (IDA) credit, aimed at supporting PFM implementation through Tanzania's second Social Action Fund, henceforth TASAF II. TASAF II was a national initiative over the period 2006-2009 aiming at financing development projects on livelihood improvements in rural communities in line with the Tanzania Poverty Reduction Strategy. The share of the

TASAF II funds which were earmarked specifically for PFM activities in Tunduru District amounted to USD 135,000¹³.

To implement TASAF II, Tunduru District Council established a District Facilitation Team, which convened village assemblies in several villages to inform them about TASAF II opportunities. The initial forestry-related expressions of interest submitted by villages, however, did not include PFM projects, but rather other forest-related projects such as tree planting, beekeeping, and the establishment of tree nurseries (Blomley and Iddi, 2009). Machemba villagers' lack of interest in PFM emanated from fears that a village forest reserve would reduce the available area of agricultural land in the village, and that it might result in increasing populations of wildlife that would escalate human-wildlife conflict, which was already reported as a serious problem in the district¹⁴. In addition, residents were worried that reserving a forest would change its tenure as the government would take over the forest and limit local access to forest products.

This was a problem, which the TASAF II funds intended to address through PFM. Since other districts faced the same problem, a country-wide meeting¹⁵ was organized in July 2007 to discuss how to proceed (TASAF, 2007). In this meeting, it was agreed that district councils should select villages and educate community members on the importance and benefits of PFM. With this agreement, and in light of the urgency of spending the earmarked funds in time, the Tunduru District Council selected six villages for the

¹³ The amount was equivalent to Tanzanian shillings 169,689,000. The exchange rate at July 2, 2007 was USD 1 = 1245 Tanzanian shillings

¹⁴ District statistics show that between 2004 and 2008 wildlife killed 36 people and seriously injured 24, destroyed 724.5 Ha of crop fields, and killed 364 heads of livestock (Tunduru, 2009). Usually, data on crop damage is significantly underreported in official statistics.

¹⁵ The meeting was attended by PFM focal persons and Village Fund Coordinators (VFC) from all 25 districts funded by World Bank/IDA, and forest officers from all seven Tanzanian Forestry Extension and Publicity Zones, and the Ministry-run Forestry and Beekeeping Division.

implementation of PFM, as they estimated that the funds would suffice for six villages only of which three for CBFM and three for JFM implementation. None of the village councils was consulted prior to the decision. Machemba Village was one of the six villages and was nominated to implement CBFM project in forests on its village land.

The village had previously caught the interest of district officials, because of timber resource endowments on village land, in what is called the Chiumbe forest. Back in early 2000, the District Forest Officer proposed to the Tunduru District Council to reserve the forest as a Local Authority Forest Reserve for timber production. This would have given the district forest office control over the forest, but the idea failed due to lack of funding of financing the reservation process.

In 2007, availability of funds, presented the opportunity of reserving forest reserved as a VLFR, which would make the district authorities have some influence over its management and control. Unreserved forests on the village land are, in many places in Tanzania, treated as *de facto* trees on general land, which fall under the jurisdiction of Tanzania Forest Service, whereas VLFRs are under the jurisdiction of the Village Council while district forest office play great role as overseer (Sungusia and Lund, 2016). Machemba Village was also attractive due to its location bordering the Sasawara Forest Reserve. Conservation of Chiumbe forest was seen as contributing to ensuring connectivity between Sasawara Forest Reserve and the nearby Nalika and Chingoli WMAs, three conservation initiatives which are situated within the Selous-Niassa corridor.

In October 2007, District Facilitation Team visited Machemba. It comprised of forestry, land, environment, and beekeeping officers with the aim of getting villagers have the

consent towards the initiation of a CBFM process, that is, the establishment of a VLFR. In the morning, the team met with the village council to brief them on the project, and a village assembly was held in the afternoon of the same day, where team members explained why the village was selected, and informed them about the economic and environmental advantages of CBFM. According to village councilors, the assembly was dominated by one-way communication – from officials to villagers with limited opportunities of asking questions. In addition, the assembly started late in the day and the agenda was therefore rushed. This implies that the concerns raised during the assembly, for example, about CBFM causing land scarcity, land use conflicts, and human-wildlife conflicts, were quickly brushed aside. The District Facilitation Team responded to such concerns by saying that land use planning would solve all the problems. One village councilor gave an account of what was promised to the residents of Mchemba as follows:

“They told us that our concerns are manageable, as the government would facilitate land use planning to allocate village lands into different land uses. Moreover, when we will start harvesting in our forest reserve, our youth will be employed, and the village government will earn income to fund community development projects. Thus, our challenges will automatically be resolved”.

Towards the end of the assembly, villagers were asked to vote on whether to proceed with the project or not. The participants were told to loudly say, “YES” or “NO,” and the majority loudly said, “YES,” in favor of the project. A few weeks later, the District Facilitation Team again visited the village. First, they met with the Village Council in a meeting where the District Forest Officer (DFO) briefed the councilors on the characteristics of the forest on village land to be reserved. Later on the same day, another Village Assembly was convened where the District Facilitation Team described the

proposed forest area, locally called Chiumbe, that would be managed under CBFM. The community members who attended the assembly approved the forest area.

VLFR registration requires the approval of a forest management plan and bylaws (URT, 2007b). This involves the preparation of the forest management plan, including mapping of the forest, assessment of the forest resources, information compilation, and analysis, which villagers are unable to do on their own. Hence, forestry officials took the lead and in collaboration with VNRC, they identified the boundaries of the proposed VLFR.

After boundary identification, a participatory forest resources assessment followed. However, before it could take place, several problems emerged, and these led to the suspension of the CBFM process for three years. First, in 2009, the District Forest Officer was accused of misusing PFM funds and this led to his replacement. Second, in 2010-11, the CBFM process became a stake in a party-political conflict in Machemba between people affiliated with the ruling Chama Cha Mapinduzi (CCM) and the oppositional Civic United Front (CUF). During this conflict, the Village Council whose majority members were from CUF decided to dismantle the VNRC and some villagers opened new farms and settlements within the proposed Chiumbe VLFR.

The CBFM process resumed in May 2012 after the District Forest Officer reinstituted the VNRC. A closer look at the forest officer's decision suggests that it was done to sustain committee members who had already received training on CBFM procedures, in other words, to avoid having to train new people (see also Green and Lund, 2015). The District Facilitation Team convened a Village Assembly to inform the villagers about participatory forest resource assessment and to elect three additional members from the village to form a forest assessment team. The team was trained in one day on how to assess forest

resources using sampling plots of 10x10 meters. Together, the forest assessment team and District Facilitation Team spent eight days to assess forest resources in the envisioned VLFR. The collected data were kept by the District Facilitation Team for further processing and drafting of a provisional forest management and harvesting plan. However, problems emerged yet again. Before the plan was drafted, the District Facilitation Team was ordered by the Forestry and Beekeeping Division (FBD) to conduct village land use planning. This activity, which is a requirement in the CBFM guidelines, was bypassed because of lack of funds. However, it was later decided that the remaining funds be used to initiate a village land use planning process, which was, however, not completed when the funds ran out. This marked the end of the USD 22,551 investment from the World Bank/IDA of establishing the VLFR in Machemba Village¹⁶. After 6 years, the CBFM implementation process came to a halt.

5.3.2 The Second Attempt at Annexing Machemba Village in Chingoli WMA

In 2013, Machemba was again approached by conservation agencies, this time with an invitation to join the nearby Chingoli Wildlife Management Area. Chingoli WMA was established in 2012 under the auspices of GTZ, JBG/WCST, and WWF through Selous-Niassa Wildlife Protection Corridor Project. At the time of its establishment, it consisted of four villages covering an area of around 940 km² (Fig. 9). However, the area to be set aside within Chingoli WMA for tourist hunting was too small to meet official regulations, and the expansion was thus sought by inviting other seven nearby villages, one of which

¹⁶ First phase PFM. 22 million TZS on a village bank account. If foresters wanted funds to visit the village, they would call the villagers to come and sign out money from the bank account. Four villagers would have to go – 40 km by bus. They spend two nights in town and each was paid TSH 25,000 for fare, meals and accommodation, summing up to TZS 100,000 per trip. The funds were mainly used for allowance. District officers would be paid 35.000 TZS per day when visiting (initially the rate was 25.000 per day but then the government increased the official rate to 35.000 TZS per day) – this led to a faster exhaustion of the funds than anticipated in the budget. When committee members attended meetings/trainings they would be paid 3.000 TZS per day.

was Machemba. The expansion would happen along with the revision of the General Management Plan for Chingoli WMA, creating a new, and larger hunting zone.

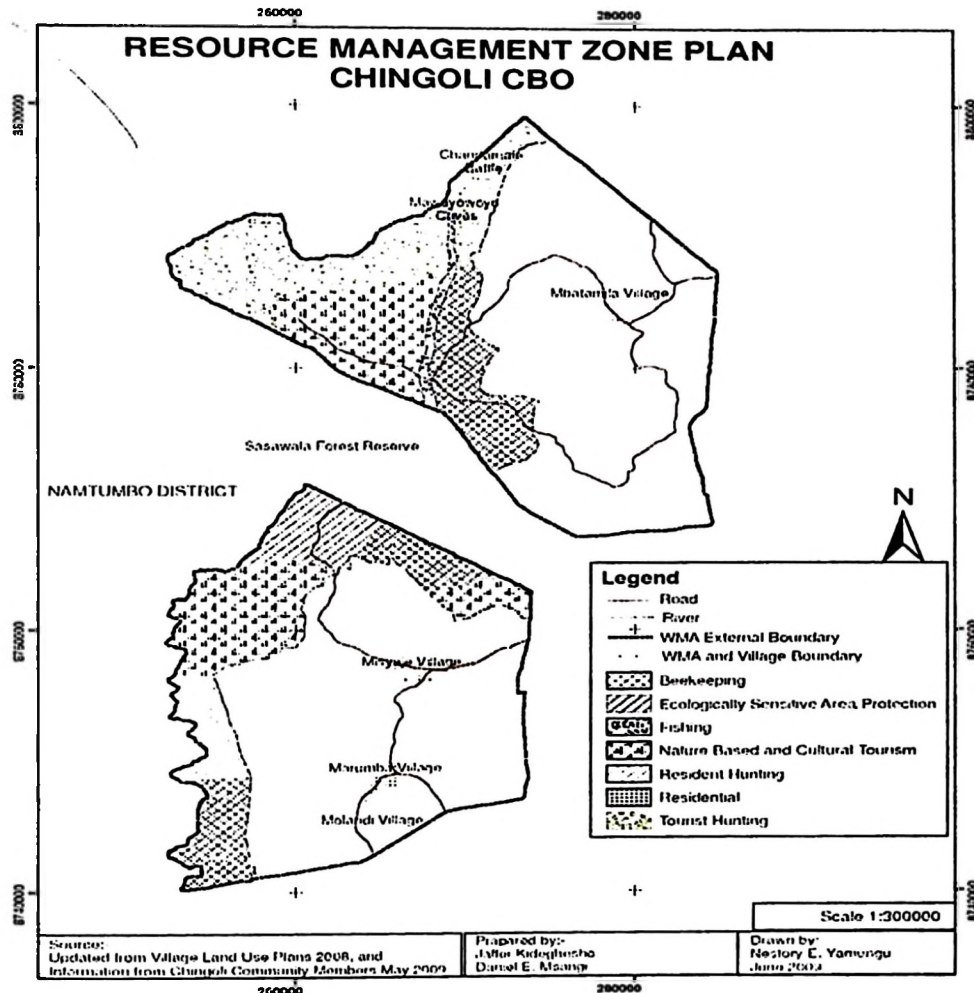


Figure 9: A map of Chingoli WMA

On 24 July 2013, the Chingoli WMA Chairman and Kidodoma Ward Chancellor attended a village assembly in Machemba. The assembly was dominated by the Ward and the WMA leader who explained the benefits of WMA membership, including wildlife tourism revenue. At the end of the assembly, the idea of starting the process of including Machemba in the WMA was put to the vote and was accepted by the majority of the attendees.

In this respect, the process of annexing Machemba Village and other six villages in the WMA began. The process was supported by Selous-Niassa Wildlife Protection Corridor Project, which also supported the establishment of other WMAs in and outside Tunduru District. The project financed a six weeklong training for the Village Game Scouts at the Likuyu Sekamaganga Wildlife Institute in Namtumbo District. The scouts learned skills in tracking and monitoring wildlife populations, crop protection, and anti-poaching. In the same period, the Village Chairman of Machemba and those of the other six villages were taken to Iringa Region for a study tour in Sustainable Use of Wildlife Resources in Idodi and Pawaga (MBOMIPA) WMA.

As the next step, the Selous-Niassa Wildlife Protection Corridor Project commissioned Arms on Environmental Limited, a Dar es Salaam-based firm of environmental experts, to undertake village land use planning¹⁷. The primary objective of this exercise was to identify the tract of land that would become part of Chingoli WMA. The firm worked together with Tunduru District Council in what is called participatory land use management team (Machemba, 2013).

On 8th October 2013, another general assembly was held. At the assembly, the team of participatory land use planning educated villagers on the purposes of a village land use plan. The actual demarcation and planning exercise was carried out in five days only, and on 13th October 2013, another village assembly was convened, in which the final village land use plan was presented and approved. According to the plan, Chiumbe Forest, which in 2007 was proposed to be reserved as a VLFR of about 6,200 Ha was divided into two

¹⁷ Section IV (30) of the Wildlife Conservation (Wildlife Management Areas) Regulations of 2012 requires any Village Council to prepare a village land use plan prior to WMA establishment.

areas: a land reserve for future expansion of agriculture land or settlements of 2 349 Ha and a forest reserve of 4 243 Ha that would be included in the WMA (Machemba, 2013).

At this point, some contestations emerged. First, some villagers contested the idea that Machemba is a member village of Chingoli WMA. These villagers, among others, boycotted the Village Assembly where the village land use plan was approved, because they did not want their names to appear in the minutes of the meeting. They opposed the inclusion of their village land in the WMA because the intervention would cause land scarcity and exacerbate human – wildlife conflict. The village land use planning report reads in part:

“Despite many efforts done by Village Council to convince villagers to attend the final meeting of approving the village land use plan; they rejected for the reason that it will legalize the creation of WMA on their village land, which they opposed. Such situation shows that villagers were not well educated on the importance of creating WMA in their village” (our translation) (Machemba, 2013).

Secondly, the Tanzania Forest Service also contested Machemba’s village land use plan claiming that the land that was proposed for Chingoli WMA is part of Sasawara Forest Reserve, and, thus, not village land. The conflict led to a stalemate, and the annexation of Machemba Village into Chingoli WMA came to a halt.

One and a half years later, in March 2015, the process was resumed by the Chingoli WMA Chairman who offered the Machemba Village Executive Officer (VEO) assistance in resolving the conflict with Tanzania Forest Service under the condition that Machemba submits an application letter for membership to the WMA and pays the associated entrance fee. On 16 May 2015, the VEO and village representatives of the Community

Based Organization submitted the application letter and paid the fee, apparently without consulting the Village Council. As a result, the Village Council sacked the Community Based Organization representatives and asked the District Executive Director to transfer the VEO, which happened a few months later, and a member of the Village Council (henceforth, Acting VEO) filled the position.

When the researcher last met the people in Tunduru and Machemba in early 2018, he was told that Chingoli WMA still officially recognizes Machemba as a member. The Chingoli WMA leadership therefore seeks to support Machemba village leaders in their claim over the land vis-à-vis the Tanzania Forest Service. However, Machemba village leaders are divided about the WMA issue, and ordinary villagers are not informed about the issue at all. Chingoli CBO members and village game scouts are pushing for the notion that Machemba is a WMA member, given their personal interests in obtaining benefits from the WMA. Other village leaders argue that they do not have land for the WMA, because the area of land they can offer the WMA is contested by Tanzania Forest Service (TFS) (Fig. 10). At the same time, TFS is preparing to resurvey the Sasawara FR, to clear forest boundaries and to install beacons. This resurvey could produce new claims to land vis-à-vis Machemba village.

Despite the ongoing uncertainty about the status of the land, Machemba elected new representatives to the WMA leadership who continue to participate in Chingoli WMA activities, irrespective of the village council admission that the land they wanted to be WMA is contested by TFS. In addition, WWF staff confirmed to researcher that all seven villages – Machemba included – are fully-fledged members of Chingoli WMA. WWF supports patrols with Machemba Village Game Scouts; the organization is looking for

funds to assist the Chingoli leadership in updating its map and general management plan. Nevertheless, the conflict with Tanzania Forest Service over the WMA land persists.

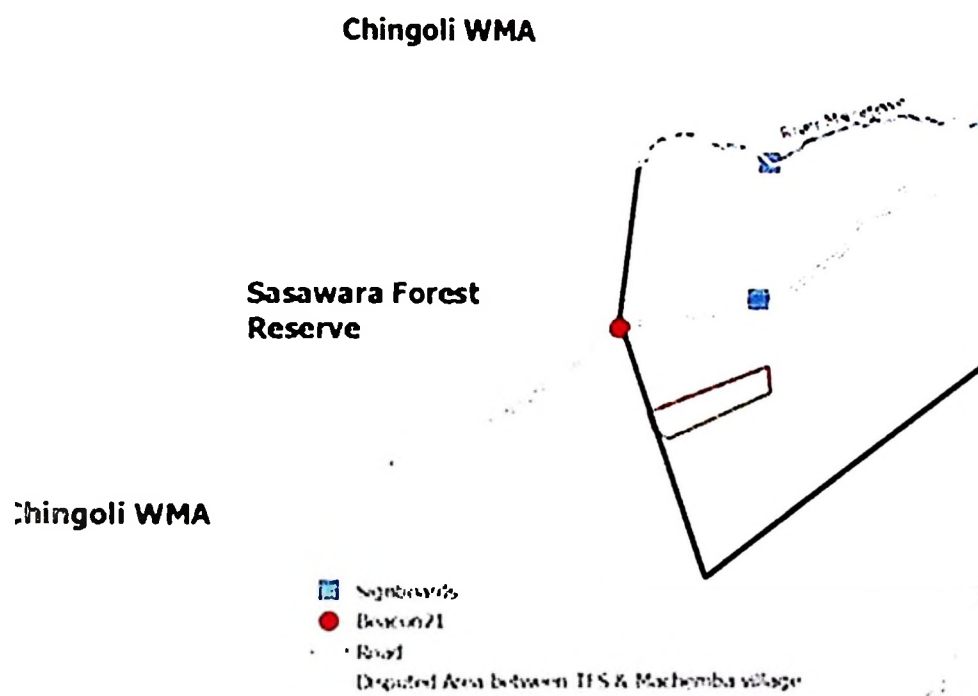


Figure 10: A map of Machemba Village showing contested part of the forest between the village and TFS

5.3.3 More Forest Conundrums for Machemba Villagers - The Third Attempt at Creating the VLFR

With the WMA process stalling, in 2013/14 Machemba was again invited to declare Chiumbe forest as a VLFR under CBFM. WWF also supported this process, in parallel with the process of annexing parts of Machemba village land to the Chingoli WMA. Thus, WWF and Tunduru District Council collaborated from 2014-2017 to initiate CBFM in 15 villages under the Ruvuma Landscape Programme. According to WWF staff, the criteria for the selection of villages were: 1) availability of well-established forest; 2) proximity to the protected areas and/or forest and game reserves; and 3) the presence of “unlawful

extraction” of trees through illegal logging and shifting cultivation. Machemba Village was nominated as it fulfilled all of these criteria according to WWF staff. The process started with the launching ceremony held in Tunduru town on 3rd September 2014, to which Village Chairmen, Village Executive Officers, Ward Councilors, and Ward Executive Officers were invited.

In Machemba Village, the process started with a visit by staff from WWF and the District Council in October 2013, where a meeting was held with the Village Council about the CBFM project. After launching ceremony, a sensitization team consisting of district and WWF staff visited the village to introduce the idea of CBFM and the process of creating the VLFR. The sensitization team emphasized that Machemba would gain authority over the forest, and would be able to retain 100 percent of the revenues from forest exploitation, collect fines and confiscate and sell illegally harvested produce. The village council and the village assembly agreed to establish a VLFR.

Next, village and ward leaders were taken on a study tour to Nanjirinji A Village in Kilwa District, which manages a huge forest with valuable timber resources, among others, Mpingo (*Dalbergia melanoxylon*), from which it generates substantial amounts of revenue that finance various community development projects. The participants also visited a wood-based industry in Lindi Town. The study tour raised the expectations about financial benefits that they would accrue from selling of forest produce. On return from the study tour, on 5 March 2014 a village assembly was convened to elect ten Village Natural Resource Committee members. After this process, two officials from Tunduru District Council, and two staff members from the NGO - Mpingo Conservation and Development Initiative (MCDI) facilitated the demarcation of the VLFR, forest resources assessment, and management planning. The demarcation of the VLFR was supposed to follow the

boundaries indicated in the 2013 village land use plan which was conducted to introduce the Chingoli WMA to the village. However, instead of respecting the 2013 plan, new boundaries were drawn to annex parts of the village land reserve (around 400 Ha) for the VLFR. Thus, the size of the proposed VLFR grew from 4,243 to 4,612 Ha (Machemba, 2013; 2015).

The new demarcation implies that more than ten households and more than five hectares of cashewnut farms were included in the VLFR. Farmers in the affected area reported not to have been consulted during the demarcation process. One of the farmers had this to say:

“We started to live in this area in 2011. During land use planning in 2013, they found us in this area, and we agreed that the boundary of the forest reserve should be Luwingu River [Outside farms and built area]. But when the second team marked the boundary of the forest [in 2014] they shifted the boundary to Mkwinda River, hence included us in the village land forest reserve and ordered us to vacate for the reason that we are destroying the forest reserve, especially a water source”.

Despite this contestation, the process of formalizing the VLFR continued. The Village Natural Resource Committee and MCDI facilitators continued with the forest resource assessment to prepare a provisional forest management plan. The document was presented in the Village Assembly on 6th March 2015 for approval. The agenda of shifting village boundaries emerged when villagers asked as to why more land had been included in the VLFR without their consent. MCDI facilitators tried to appease the villagers by assuring them that the villagers have the powers of revoking the contested part. As a result, the villagers approved the plans as one old man recounted:

"We asked them about our land reserve, they told us that it is included in the VLFR because it has very big trees with potential for timber production but we may revoke it later once we demand more land for crop production. They also advised us to start harvesting timber from the area so as when we decide to use the area for crop production, there will be no more bigger trees".

On 16th June 2015, the Village Assembly was convened to hand over forest management rights to the village. Forest management includes supervision of harvesting activities, patrolling the forest against illegal activities, issuing harvesting licenses for forest products and evicting villagers who have either established settlement or farm within the VLFR. Some farmers were already given an eviction notice by August 2016 from the land they have been farming for generations. By 2017, all the farmers had vacated the area.

5.4 Discussion and Conclusion

Examination of the various conservation claims made vis-a-vis Machemba Village land illustrates the complexity of the politics of conservation. Through 'educating' village leaders about the importance and development promises of community-based conservation initiatives, and giving them opportunities for study tours and meeting allowances, staff from the district office and conservation NGOs managed to gain a foothold in Machemba. At no point in time did this result in broad-based dialogue about and acceptance of the idea of conserving Chiumbe Forest. Rather, no sooner had the village leadership gotten on board; the process of introducing community-based conservation was hastily started through village assemblies, usually by asking villagers to agree to conservation initiatives and/or to elect local representatives in the very same meeting that the idea was first presented to them. Often only minority attended these assemblies as many other villagers boycotted the assemblies as a show of resistance against these endeavors. The District

Council and NGOs actors were aware of opposition against the idea of setting aside village land for conservation. However, conservation actors proceeded with the process, interpreting any show of resistance as lack of sensitization and awareness about the advantages of the process. Villagers were simply “not well educated on the importance of creating the CBC area in their village” (Machemba, 2013; 2015).

Not surprisingly, the initiation of the process was marred with intrigues – and was sometimes obstructed – by political struggles and internal conflict in Machemba Village. The first CBFM initiative was delayed by rivalry among the village leadership (as leaders and supporters CCM conflicted with those from CUF). The WMA initiative divided the village leadership into a camp of WMA benefactors and those who with concerns of losing land and control of resource to the WMA. The last CBFM initiative that involved the extension of the VLFR into land that was previously not declared as part of VLFR ended up victimizing some village farmers. Such political struggles and conflict are unavoidable, as conservation initiatives would involve struggles over who should bear the costs and who should benefit. External actors, whose strategy was to sway the village leadership, imposed such struggles on Machemba villagers. Further, community-based interventions were aggravated by being conducted in manipulative and haphazard ways.

The process was manipulative because Machemba village leadership⁷ lack of interest in CBFM was ignored by the District Facilitation Team that was bound by TASAF funding purposes. Through promises and careful land use planning, the team managed to convince villagers to accept the idea, only to proceed without land use planning. This implies that the process ended when the funding ran out. Another example of manipulation was the choice of the village in Kilwa District for the study tour during the second attempt of implementing CBFM. This village is quite unique in Tanzania with higher timber revenue

potential than the Chiumbe Forest has. Its sheer size and the presence of highly valuable tree species in harvestable sizes, such as Mpingo (*Dalbergia melanoxylon*) make the village a poor demonstrator case for most other villages in Tanzania.

Another example is the inclusion of additional 400 Ha of land into the VLFR. When questioned about this at the general assembly, implementers chose to convince villagers by suggesting that the VLFR could simply be revoked or the boundaries changed at a later stage. While this may be possible in theory, the legal pathway is long and involves powerful and distant actors that the villagers are unable to influence¹⁸.

The process was haphazard, as evidenced by ad hoc general assemblies and by the fact that only five days were spent on land use planning during the WMA initiative, which may have resulted in the boundary conflict with Tanzania Forest Service over Sasawara Forest Reserve and the rejection of the plan by many villagers. These instances of top-down, haphazard, and manipulative approaches to community-based conservation resonate with the findings from other places in Tanzania, where conservation actors have sought to secure corridors as part of larger landscapes or ecosystems of presumed conservation value (Igoe and Croucher, 2007; Loveless, 2014; Moyo *et al.*, 2016; Bluwstein and Lund, 2018).

The main reason why Chiumbe Forest has drawn so much attention from different actors is its role as a vital piece of the puzzle to 'secure' wildlife mobility through the Selous-Niassa Wildlife Corridor, which itself is seen as an integral part of the Ruvuma

¹⁸ According to section 29 of the Forest Act No. 14 of 2002 (URT, 2002), the power to alter and de-gazette a forest reserve, including the VLFR is rested with the Minister responsible for forests. This implies that villagers' application to alter or de-gazette the VLFR should get approval of the Village Council, Village Assembly, District Council, and the Director of Forestry and Beekeeping Division at the Ministry. We know of no examples of a village having successfully gone through this process.

Landscape. This corridor is, of course, not an entirely natural phenomenon. Rather, as documented elsewhere, it has been shaped by the colonial history of human resettlement and the establishment of Selous Game Reserve (Neumann, 2001), which was created to push elephants into a wildlife container and to separate wildlife from rural areas. The British colonial administration conducted several resettlement campaigns to free the present day Selous from human inhabitants. In separating people from wildlife, the idea was to protect people's farms from crop raiding animals and enable hunters have a huge shooting playground for themselves (Neumann, 2001). This large-scale re-ordering of spaces previously shared by people and wildlife radically reconfigured human and nonhuman land use that is taken for granted today. Corridor research and conservation activities of the last three decades must be understood as efforts of securing the viability of this colonially established conservation landscape amidst rural territories (Bluwstein and Lund, 2018). When conservationists first set eyes on the area that was to become a corridor in the late 1980s, their focus was on the establishment of buffer zones for the Selous Game Reserve. Only a decade later, following more research and conservation efforts, donors and conservation agencies framed the entire area towards Niassa National Park as a corridor. Since then, five WMAs have been established (Picard, 2010; Noe and Kangalawe, 2015; Bluwstein and Lund, 2018), and other types of conservation areas, such as VLFRs, are underway.

In addition to the idea of a vital corridor that looms large in conservation planning and that invites different initiatives into village land, the challenges faced by Machemba villagers are also shaped by shifting institutional landscapes and political priorities in the Tanzanian government. The creation of Tanzania Forest Service implies a push for resurveying and regaining control by the central government of Forest Reserves, such as Sasawara FR. While couched in a rhetoric of conservation – saving the national forest estate from

destruction and encroachment (The Citizen, 2017b) – the creation of Tanzania Forest Service echoes the neoliberal turn in public administration that ought to be efficient and self-financed. TFS emerged out of the government reform programs that Tanzania embraced under the influence of international credit organizations, in particular the World Bank, in the 1990s. Thus, revenue targets – and a pressure to meet them – are a central tenet among TFS officers (Sungusia, 2018).

The detailed observations of the competition over the control of Macheмба's land from the perspective of the village speak to conservation science and policy. Conservation targeting corridors, landscapes, and ecosystems is ostensibly based on ecological studies of resources and wildlife movement/behavior patterns (Abrahms *et al.*, 2017). This has made conservation scientists argue that such approaches denote a departure from previous opportunistic conservation priorities, where conservation was targeting areas that were seen as 'easy' to conserve on the basis of socio-economic conditions. While others have problematized the ecological theories and evidence of connectivity underlying landscape approaches and shown how corridors ostensibly identified on this basis are conjured up on the basis of questionable evidence (Goldman, 2009; Hodgson *et al.*, 2009). This work adds to this second-order opportunism. This second-order opportunities materialize, as it has shown, as conservation through whatever available *means*, given donor-funding priorities and the existing legal mechanisms that may ensure the conservation of *a priori* identified areas of conservation interest. Consequently, people who lived in the area that has thus been selected for conservation are subjected to targeted conservation campaigns aimed at eliciting their support, and at last acceptance of conservation interventions. In this case, this resulted in three rounds of stop-and-go conservation interventions targeting Chiumbe Forest, where the policy and process were decided by funding priorities and time schedules rather than by local needs or ecological considerations.

This is important, as landscape approaches are increasingly in vogue in global conservation policy. While policy makers and conservation practitioners in governmental and non-governmental organizations are envisioning a world of large-scale area-based interventions to achieve globally tracked targets. The reality of doing this work defies the notion of community-based, consensus-oriented, participatory, and apolitical spaces where global ideas can be implemented locally, simply and smoothly.

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CHAPTER SIX

6.0 MANUSCRIPT III: *“What we know is to measure tree waist”*: Understanding the role of trainings in inventory based Participatory Forest Management planning in Tanzania

Abstract

In the implementation of the community forestry, a Forest Management Plan serves as a pre-requisite for transferring forest management authority to local communities. Its preparation requires participation of the local community. However, it is a technical activity, which is beyond general knowledge of local communities. Thus, forest bureaucracies have been providing trainings that aim to empower forest committee members to be able to acquire necessary skills and knowledge. This study therefore aims to understand the role of trainings in inventory based participatory forest management planning in Tanzania. The study was conducted in three villages of Tunduru District, Southern Tanzania; Mindu, Songambele and Namakambale. Primary data were collected through participant observations for six months, in-depth interviews with forest committee members and professional foresters, and face-to-face interview with forest committee members. The result show that forest committee members were trained for half a day on inventory methods, materials used in the forest inventory, and how to measure tree circumference. During fieldwork, the roles of forest committee members were to identify, measure and record tree circumferences in notebooks. The results show that none of the committee member was capable to plan forest inventory, use GPS, analyze inventory data and estimate sustained yield. Therefore, committee members were trained to do manual work, which demand limited skills and knowledge in a return for remuneration. To make

planning process less costly, participatory and empowering forest committee there is a need of providing sufficient resources for trainings.

Keywords: *Forest inventory, sustained yield, community forestry, forest committee, Southern Tanzania*

6.1 INTRODUCTION AND BACKGROUND

6.1.1 Introduction

Forest management planning includes assessment of forest ecosystems via forest inventory in order to identify available resources and opportunities and to decide how these resources would be utilized (Dennis-Perez and Kuhns, 2012). The final output of the process is a document called “Forest Management Plan (FMP)”. The FMP contains the description of the forest, management objectives and goals, prescriptions and activities for a set period of at least five years. The FMP serves as guidelines for sustainable forest management by defining forest management prescriptions and utilization, milestones for monitoring and evaluation of the management practices. Moreover, the implementation of FMP can provide useful information for the review of a forest policy, legislation and programme, and a tool for communicating forest objectives and strategies to stakeholders (Scheba and Mustalahti, 2015). In the implementation of Community Forestry (CF) in many developing countries, the FMP is a pre-requisite for transferring forest management authority to the local communities (Schroeder 1999; Arnold 2001; URT, 2002; Nightingale, 2005; Movuh, 2012; Scheba and Mustalahti, 2015; Toft, *et al.*, 2015).

The preparation of the FMPs is a technical activity, which is developed largely in accordance with the scientific forestry approach, which comprises principles and methods aimed at ensuring a permanent forest estate and a sustainable supply of forest products. Trees are measured and their growth rates are modelled to yield the predictions on how

much can be harvested without compromising the objectives of a long-term, steady supply of wood. Forest management planning involves forest inventory that requires careful selection of appropriate sampling strategy, and calculation of the number of plots and or transects. Others include the collection of forest parameters (e.g. tree diameters/circumferences at breast height, and tree heights), and the analysis of inventory data including the calculation of annual allowable cuts (AAC) (FAO, 2004; Rut *et al.*, 2015; Basnyat *et al.*, 2018; Baral *et al.*, 2018). Most of these procedures seem to be far beyond the working capacity of ordinary local people (Ball, 2007, 2011; Toft *et al.*, 2015) who are the forest owners and managers. In assisting local people to prepare FMPs, and empowering them to become effective forest managers, forest bureaucracies have been using limited funds solicited from donors to train forest committee members in preparing FMPs (Blomley *et al.*, 2008; Basnyat *et al.*, 2018). In Tanzania, for example, a sum of US\$ 20 to 30 million have been used for the past two decades in the implementation of CF activities (Treue *et al.*, 2014) to support villages prepare and endorse their FMPs.

However, little is known on whether forest committee members are actually empowered to apply the acquired knowledge and skills in preparing FMPs by themselves either without or with little technical support from the professional foresters. This study, therefore, seeks to fill this knowledge gap by evaluating the attainments of the training goal of forest committee members – of becoming effective forest managers through empowerment while reducing the role of professional foresters from being active participants as technical advisers (FAO, 2004). Specifically, the study sought to respond to the following questions:

- (Q1) How trainings on inventory based participatory forest planning were organized?

- (Q2) What did forest committee members actually do when inventory-based participatory forest planning was carried out?
- (Q3) Do forest committee members who acquired the knowledge and skills are capable to replicate the inventory based participatory forest planning?

The three questions aimed at explaining the role of trainings in inventory based participatory forest management planning. This was done because the current topic received little attention by scholars interested in technical framing and expertise in the CF. Many previous studies focused on how inventory-based management planning promotes elite capture, exclusion of illiterate and innumerate people, and dominance of experts by reducing the role of forest committee members from active to passive participants and mere enumerators (FAO, 2004; Ball, 2007; 2011; Green and Lund, 2015; Lund, 2015; Basnyat *et al.*, 2018; Baral *et al.*, 2018). In addition, other scholars (Ball, 2007, 2011; Mathews, 2011; Mustalahti and Lund, 2009; Rutt *et al.*, 2015), argue that inventory-based management planning increases the costs of establishing community forests and thus slows down the transference of forest management and use rights to local communities (Mustalahti and Lund, 2009; Scheba and Mustalahti, 2015).

Therefore, the examination of Q1 focuses on what is actually taught in the trainings on inventory based participatory forest management planning, training duration, and forest inventory materials that forest committee members are exposed to. The response to Q1 would reveal the competence of the trainees on forest inventory before their participation in the actual planning process. Question 2 focuses on the roles and responsibilities of forest committee members in the actual forest inventory (what they actually did during planning activity). Finally, Q3 explores capabilities of the forest committee members in carrying out inventory based forest management planning, in other words, whether they

can undertake all the activities with little support from professionals. The empirical context of this study is a Community Based Forest Management (CBFM) in three villages of Tunduru District, Southern Tanzania - Songambe, Namakambale and Mindu.

In Tanzania, there are three different forest inventory and yield estimation methods, which are commonly used to carry out forest inventory and to estimate Annual Allowable Cuts (AACs) in the CBFM forests. These include Participatory Forest Resource Assessment (PFRA) (see URT, 2005), Participatory Forest Carbon Assessment (PCFA) (see Mukama *et al.*, 2012), and Participatory Forest Inventory and Analysis (PFIA) (see Ball, 2007; 2011). This study focuses on the use of PFIA¹⁹. Like other participatory forest inventory methods, PFIA involves the provision of training to forest committee members (henceforth Village Natural Resource Committee - VNRC) with a view of empowering them to become forest managers. Nevertheless, I argue that the training provided to VNRCs does not help them to acquire the intended knowledge and skills, but is rather an avenue of promoting dominance of professionalism in the CBFM. This is also reflected in what VNRC actually do in practice. Therefore, this paper builds on and adds to the empirical evidence on the emerging problems of framing the CBFM based on science and the implementation of the CF around the world and in Tanzania specifically.

6.1.2 Background information

Forest management covers all aspects of forests, including administrative, economic, legal, social, technical, and scientific. Forest management like other branches of forestry science is taught in forestry colleges all over the world in order to provide scientific training to people who are prepared to become professional foresters. In Tanzania, the Forestry Training Institute (FTI) - Olmotonyi was the first forestry college. The college

¹⁹ Participatory Forest Inventory and Analysis (PFIA) method was developed in 2009 by Steve Ball who was one of the founders of the MCDI.

was established in 1953 in Tanganyika by British colonial administration to train local people to become forest wardens (Kilahama, 2013). Thereafter, Sokoine University of Agriculture (SUA) in Morogoro started offering training on forestry after its establishment in 1984. Therefore, SUA became the only college that provides advanced degrees in forestry (see Sungusia, 2018). Trainings that people received from these colleges aim at adjusting their values and attitudes towards forest management as opposed to values and attitudes of the ordinary people – who possess local/traditional knowledge. Trained foresters believe that economical exploitation of timber and protection of land against degradation would be attained through bureaucratic control of forests (Neumann, 1997). With such belief, many forest reserves were established during colonial and post-colonial periods and whose management was under the central government through forest department. This approach was referred to as Centralized Forest Management (CFM) (Neumann, 1997; Sunseri, 2003, 2009). By 1952, 3.2 percent of the forest area in the current Mainland Tanzania was under bureaucratic control (Neumann, 1997).

The implementation of CFM is too expensive and too dependent on professional foresters (Sunseri, 2009) and adheres to the scientific prescriptions stipulated in the FMP (Guha, 1985). Consequently, many developing countries opted to include local people in both forest resources assessment and management (Holck, 2008; Mukama *et al.*, 2012; Zahabu, 2008) to cut down expenses. Nowadays, terms such as participatory forest management, participatory forest monitoring, participatory forest resources assessment, participatory carbon assessment and many others dominate in forestry domain – forest policies, laws, guidelines, decrees and even in scholarly articles and official reports (Holck, 2008; Mukama *et al.*, 2012; URT, 1998, 2001, 2005, 2007; Zahabu, 2008).

Nevertheless, the major challenge in the transformation from state-centred (where professional foresters dominate) to community based forest management (where unprofessional communities dominate), is how standard scientific procedures of assessing, monitoring and managing forests can be adopted and used by local communities who are either uneducated or have basic education. Therefore, scientific trainings become a centrepiece in the implementation of the participatory forest resources assessment, monitoring, and management. Trainings aimed at building capacity of the local people through imparting them with scientific knowledge and skills in order to undertake their roles and responsibilities. DeSario *et al.* (1994) define training as the learning of experiences, which are designed to enhance the short-term and/or a long-term job performance of individuals in the workplace. It (training) is viewed as part of an on-going developmental process whose execution is linked with the organizational mission (Facteau *et al.*, 1995; Goldstein and Ford, 2002). Therefore, when governments and other forest stakeholders plan training activities to local people, they attempt to provide the link with the organizational mission in forest management.

6.2 Study Area and Methods

6.2.1 Study area

The study was carried out in three villages namely Mindu, Namakambale and Songambele. All villages are located in Tunduru District, Ruvuma Region in Southern Tanzania (Fig. 11). The presence of the Selous Niassa Wildlife Corridor and the ecosystem is one of reasons for choosing the district. Unlike other districts, Tunduru has attracted many conservation agencies in restoring the ecological connectivity in and around the Selous-Niassa Wildlife Corridor through the establishment of community based conservation areas such as Wildlife management Areas (WMA) and Village Land Forest Reserves (VLFRs) (WWF, 2014).

as to improve forest governance and local livelihoods. These three villages are also the beneficiaries of the trainings, which were offered by professional foresters (henceforth experts) to the members of VNRCs and Village Councils during the process of preparing and endorsing their FMP in order to acquire user rights. The three villages were also selected because participatory forest planning had already started when this study commenced - in October 2015. Therefore, it was easier for the researcher to take part in participatory forest planning as an observer. Table 7 presents basic characteristics of the selected villages in terms of demography and VNRC composition by age, gender, and education.

Table 8: Demography and VNRC members in the study villages

Attributes		Study villages		
		Songambe	Namakambale	Mindu
Total population in the village		1,164	12,244	1,557
Total households in the village		306	1,769	341
Size of the VLFR		10,217.18 Ha	4,991 Ha	3, 713 Ha
Total number of VNRC members		17	17	17
Distribution of VNRCs				
Sex	Male	13	11	10
	Female	4	6	5
Age	<40 years	14	10	9
	>40 years	3	7	6
Education	None	5	0	3
	Primary	12	15	12
	Secondary	0	2	0

Source: Own field survey, 2017

Two ethnic groups were dominant namely, the Yao, and Makua. The majority of the residents in the area depend on crop production for their household income. The main crops grown include paddy, maize, cassava, sweet potatoes and pigeon peas for food while

cashew nuts, sesame, and groundnuts are grown as the main cash crops. Paddy is grown in the permanent plots located in the lowland, locally known as *Dimbe* using traditional irrigation schemes. Besides paddy, maize, and pigeon peas are grown during rainy season and normally involve shifting cultivation. Livestock keeping is the second most important livelihood strategy after crop production. Livestock include local chicken, cattle, goat, and sheep. Other livelihood strategies include petty business (e.g. vendor stall, kiosks, and bites), crop trading, exploitation and trading of forest products (e.g. charcoal and building materials like timber, poles, bamboo, thatches, and weaving materials), casual labour and handcrafts (e.g. carpentry, mason, mechanic, weaving, and tailoring).

6.2.2 Methods

To understand what VNRC members actually learnt and did during inventory based participatory forest planning, I applied multiple methods were applied in order to crosscheck the results (triangulation). These include participant observations, focus group discussions, and formal and informal interviews.

For participant observation, the researcher spent six months from October 2015 to March 2016 working as intern in the MCDI in order to observe participatory forest planning processes. The planning activities were the principal domain of VNRC members. Activities were carried out sequentially in the three villages; starting with Namakambale, Songambe and Mindu. The planning exercise begun with marking forest boundaries, followed by training. As an intern, I participated in every planning activity and noted in the field notebook all activities observed. I used a voice recorder to record oral discussion, which was aired out between experts and VNRC members during training. A camera was also used to take photographs of events, which were later used to provide insight into

memory and identity construction (Harrison, 2002). Table 8 presents the collected information.

Table 9: Type of information generated during participant observation

SN	Activity/Meeting	Type of information collected
1	Trainings to VNRC and village council	Purpose of training, organization of training, facilitators, and materials used in training.
2	Forest inventory	Organization of the crew, role of each member in the crew, and materials used.
3	Three day seminar to develop a provisional FMP and bylaw	The role of VNRC and village council in analysis of inventory data, calculating annual yield and drafting of the FMP.

For the focus group discussion (FGD), all VNRC members were invited for three hours session in each village. The exercise had two objectives: 1) to understand the roles of VNRC members in the actual planning process, and 2) to understand the capability of the VNRC members to replicate the process using knowledge and skills they acquired from trainings and field works. To address the first objective, participants were asked to list their roles and responsibilities in the actual fieldwork. For the second objective, participants were asked to note all the activities which were carried out during the planning process and which they can perform themselves, that is, without or with limited technical support from the experts.

The interview part of the fieldwork took place after formalization and legalization of the provisional FMP. This was the period when the implementation of the forest management activities had started – forest patrols and marketing of the forest in seeking for timber buyers. The interviews were divided into two phases: phase one was a group interview held in the office of the village government. The VNRC members were asked about how

they participated in participatory forest planning. The group interview in each village lasted for two hours. Phase two was individual interview to understand the competency of each VNRC member on mapping, estimating the number of transects, estimating distance between transects, traversing along transects with GPS, measuring circumference of a tree at breast height, and calculating forest stock from the collected inventory data (Table 10).

Table 10: Checklist for assessing competency of VNRC members

SN	Activity	Yes	No
1	Can you prepare scaled forest map?		
2	Can you estimate number of transects?		
3	Can use GPS to align inventory crew along transect?		
4	Can you measure CBH using tape measure?		
5	Can you identify trees suitable for timber available in the VLFR?		
6	Can you record trees names and corresponding CBH in the notebooks?		
7	Can you calculate inventoried area?		
8	Can you calculate tree volume per hectare?		
9	Can you calculate number of per hectare?		
10	Can you estimate sustained yield?		
11	Can you preparation of FMP and bylaws?		

Every VNRC member who participated in the planning process was visited in his/her home to conduct one-to-one interview in order to collect information on his/her capability to replicate the planning. Fifty-one VNRC members were interviewed, 17 VNRC members from every village. The interviews were done with the aid of the checklist with all planning activities. The respondents were required to say “YES” if he/she was competent in a particular planning activity, or “NO” if otherwise.

The analysis of the data collected through simple survey was done in SPSS 20 for Windows. Data were first coded, entered and cleaned before the actual analysis. The analysis was based on means and frequencies. The analysis of qualitative data was done using content analysis. This was carried out concurrently with data collection exercise (Chambers, 1994) with the aid of VNRC members who participated in FGD. All verbal and non-verbal messages that participants had revealed and reached consensus were treated as data and therefore recorded in the form of texts, translated from Swahili to English and finally transcribed into Word files. Data collected through group interview were first translated from Swahili to English and transcribed into Word files. The secondary data collected from published and unpublished literature were summarized in line with research questions.

6.3 Results

6.3.1 Organizations of trainings on inventory-based forest management planning

The fact that forest can be assessed by quantifying the available trees in the forest and sustained yield can be calculated were very new concepts to trainees. Every trainee was eager to learn how trees in a thousand hectares forest can be counted and those suitable for harvesting can be identified by their names, and sizes, and their volumes can be calculated for marketing purpose.

The preparation of the FMP in Songambe, Namakambale and Mindu villages was facilitated by four experts; two from MCDI and two from TDC. The MCDI is a local NGO, which is a champion of a PFIA method. Unlike other inventory methods, PFIA does not involve a fixed sampling intensity, and uses transects of 10 m width or more instead of sample plots. To empower local people to be conversant with the method, experts organized half a day training in each village whereby between 40 and 45 people

participated in the training. Trainees comprised members of the VNRC and Village Council. Every trainee came with his/her notebook, and pens that were given at the beginning of the CBFM project for taking notes. Training was held in the office of the village government, and focused on three topics: 1) types of forest inventory methods, 2) forest inventory materials, and 3) uses of forest inventory materials during fieldwork.

In the first lesson on the types of forest inventory methods, the expert presented two types of forest inventory methods: the use of plots (either circular or square plots); and the use of transects. According to the expert, the objective of the first lesson was to expose trainees on different forest inventory methods in order for them to make a rational decision on which method to use based on simplicity and cost effectiveness. Both plots and transects were new concepts to all trainees. The expert told trainees that trees are not going to be counted or measured in the whole forest, but in a representative sample plots or transects only. Trees counted/measured in sample plots/transects would be used to estimate the total number of trees in the VLFR. For each method, the expert explained how it would be applied, and what would be the corresponding challenges. The expert had this to say:

“The plot method is mainly used when you want to assess more than one forest resources/products. A shape of plot can be circular, rectangular, or square. All trees found within sample plots are counted or measured. Its main challenges include time consuming to lay out plots, hence higher cost”.

He continued:

“The transect method does not use plot instead it uses transects, which are imaginary lines. The inventory crew walk abreast along the transect counting or measuring all trees encountered within. Transect method is useful when you want

to assess a single resource/product e.g. timber. The transect width is 10m while its length will vary depending on the length of the forest. It is simple for villagers to understand, use less time, and therefore very cheap".

He concluded the topic by asking participants to choose one method, which they considered simple and cost effective. Based on the expert's presentation, trainees opted to use transect method instead of sample plot method.

In the second lesson, the expert introduced forest inventory materials to be used during fieldworks. These include 1.5 m measuring tape for measuring tree Circumference at Breast Height (CBH), note books and pens for recording tree parameters, and Global Positioning System (GPS) for locating starting points of the transect and aligning the inventory crew along the transects during forest inventory. Of all materials, only GPS was not known to trainees, the rest were well known as were available in the respective villages. According to the expert, the 1.5 m measuring tape, and notebooks were used instead of callipers, diameter tape and printed forms, which were not readily available in the villages.

In the third lesson, the trainees were trained on how to measure CBH using 1.5 cm measuring tape. The expert termed CBH as tree waist for simplification. However, the CBH was a totally new and abstract concept to the participants in the studied villages. In the first instance, the expert demonstrated how to locate a tree waist. He said:

"A tree waist is at 1.3 m from tree base. This equals the height from your feet to the breasts".

Then, the expert demonstrated how to measure a "tree waist" by measuring the waist of one VNRC member. Thereafter, six VNRC members were called to stand in front of others and were divided into three groups. Everyone in a group practiced measuring the

circumference of a tree by measuring the waist of his/her colleague. It was observed during training that the expert was satisfied with the ability of trainees in taking measurements and considered them qualified for actual fieldworks. Finally, the expert mentioned sources of errors that may arise when measuring tree diameters, and these include incorrect point of reading, inclusion of finger during measuring and reading a wrong unit: a centimetre or an inch.

The trainees were not taught how to record tree attributes in notebooks and how to use GPS. Instead, they were only informed on the uses of the GPS - to align inventory crew to walk abreast along the transect. The training was concluded by experts explaining to trainees the purpose of the forest inventory, which was to estimate sustainable yield of a forest for timber production. The expert facilitated identification and prioritization of tree species suitable for timber production. Finally, the expert said that the minimum CBH for a tree to be measured and recorded is 75 cm. On the other hand; the Minimum Legal Circumference for Harvesting (MLCH) is 142 cm. As for data analysis, trainees were told that the measured trees would be divided into three CBH classes; small trees < 142 cm (CBH), medium trees 142-284 cm, and large trees > 284 cm. Harvestable tree sizes are those with CBH >142 cm (i.e. medium and large trees) with the exception of *Dalbergia melanoxylon* whose minimum harvestable size is 65 cm.

6.3.2 The roles of VNRC members during forest inventory, and preparation of the FMP

6.3.2.1 Forest inventory

The actual forest inventory was carried out immediately after training. The objective of the exercise was to generate precise and detailed information on the quantities of different tree species in order to prepare the FMP. The duration of the forest inventory in terms of

number of days varied slightly across villages depending on the size of the forest: 4 days in Mindu, 5 days in Songambebe and Namakambale. The forest inventory involved experts and VNRC members. In each village, the VNRC members were divided into two teams of eight people; each team was led by two experts one from TDC and another from MCDI. In each team, one expert held GPS to align a crew along the transects, two VNRC members held measuring tapes for measuring tree CBH, and two VNRC members in each team held a note book to record names and sizes of the trees measured. Before the actual forest inventory started, experts briefly trained record keepers on how to record tree attributes in the notebooks.

It was observed that record keepers were required to record tree names and their corresponding tree CBH. It was further observed that before taking measurement of a tree, a tree bole was assessed to see whether it was suitable for timber production. According to the expert interviewed, the assessment of tree bole was done to ensure that only trees, which were suitable for timber production, are measured and considered in the yield estimation. Thereafter, the team started walking abreast along transects and measuring and recording circumferences of tree species, which are considered to be suitable for timber production. In each team, the role of experts was to orient the team along transect using GPS. The roles of VNRC members were to identify trees with the help of experts, measuring trees, and recording tree names and sizes in the notebooks. At the end of data collection in each day, notebooks were handed over to the experts who took control of data entry. In the following morning, all the notebooks were given back to the record keepers. At the end of the day, an allowance amounting to USD 5 was given to VNRC members.

6.3.2.2 Data compilation, analysis and preparation of the FMP

At the end of forest inventory in each village, the experts collected all notebooks from record keepers for final data entry, analysis,²⁰ and preparation of a draft of FMP. This activity was carried out in Tunduru Town in the absence of the VNRC members. It took almost three weeks for experts to finish data entry, analysis, and drafting of the FMP. The FMP entails a map of the forest and texts describing ownership of the forest, management objective, general description of the village and forest, and status of the forest. Others include forest uses (e.g. stating how many trees can be harvested for timber production and other forest products and from where), management prescriptions (e.g. activities leading to forest protection) that all actors should comply with, and forest management responsibilities.

When the draft of the FMP was ready, members of VNRC and Village Council were invited to participate in a three-day seminar held in the village. The objective of the seminar was to review and discuss the draft. All invitees attended the seminar. During the seminar, participants were told how the number of stems was calculated and how sustained yield was estimated. Participants were first divided into groups of at least five people each including at least one VNRC member and village councillor in order to share experience. In the first day, each group was given a copy of the harvesting plan. The expert asked groups to read every page of the plan and in some cases, the expert appointed one participant to read loudly to others, and asked the rest of the members whether things were clear or not.

²⁰ Analysis in this case refers to sorting out of inventory data in order to estimate annual allowable cut (AAC). The exercise involved classifying tree sizes into three circumference classes based on Legal Minimum Diameter for Harvesting (LMDH): small, medium and large trees. Estimation of AAC involved medium trees; small trees were left to attain harvestable size. For every tree species, experts calculated the so called sustained yield based on the following assumptions: rotation age of a tree, the number of species that will die/be affected by natural phenomena, and the number of trees counted during transect walk (Sautimoja, 2015). The sustained yield was 12, 485 stems, which is equivalent to 17,591 m³.

In the sections where tables indicated the number of stems and standing tree volume, expert spent more time to explain how these were calculated. However, the explanation was too superficial even for the researcher with Masters of Forestry (management and mensuration) to understand the calculations easily. It was observed that the majority of participants were puzzled; some started to chat on other issues, and very few were seriously following the presentation. When the expert realized that the majority of participants were left behind, he decided to skip calculations. The following quotes illustrate how the expert presented the process of estimating sustained yield:

1. *"We first entered all trees and corresponding CBH in the computer. Then, we classified them into three CBH classes for each tree species based on Legal Minimum Diameter for Harvesting (LMDH): small, medium and large trees".*
2. *"In calculation of sustained yield we considered many things, including rotation age of a tree, the number of species that will die/be affected by natural phenomena, and the number of trees counted during transect walk".*
3. *"In last pages of the plan there are many tables. Those tables were generated during calculation of the sustained yield. They are so technical; I will not go through them. If I do so, I will leave you behind, or you will all run away from this seminar. I will read few tables that are simple and understandable to you all".*
4. *"I don't know how to explain this table as I don't have simple words which I can use to translate the technical terms in order to make you understand how we have reached to these figures".*
5. *"Each tree has its Legal Minimum Diameter for Harvesting (LMDH), a tree which is below a LMDH is not allowed to be harvested. If it is harvested, district forest officer may take legal action to the village, and thus it may create problems".*
6. *"We had listed many trees before carrying out actual forest assessment, after analysis, we found that very few trees were available in large quantities. These are*

trees that you should keep in your mind that they will be harvested from the VLFR.

If someone asks you about harvestable trees, mention these trees. He further added, *“Any tree which is not listed in this plan will not be harvested”.*

7. *“We are selling the whole tree as per government regulations and not a number of logs or pieces of timber”.*

In the second and third day, each group was given a copy of the forest management plan and bylaws. In every subsection/paragraph of the document, the expert appointed one participant to read aloud to others, and asked the rest of the members whether things were clear or not. In most cases, participants shouted in chorus “we have understood” implying that explanation in the subsection was clear and accepted. In rare cases, especially on rules governing access in the VLFR, participants asked for clarification. In such cases, the experts told the participants that such rules were included as per the requirement of the forest law, administrative circulars, decrees, and guidelines. The only section where participants had the freedom of discussing the plan and giving their inputs was the pricing of non-timber forest products and fines. Nevertheless, participants’ inputs were much influenced by instructions from the experts’ such as:

“A fine should not exceed TZS 50,000 as per local government act” and “a price of such product in other villages is this much, or if you charge less the village will lose revenue.”

The seminar was also used for collecting information to be included in the FMP. Such information includes the date of registration of the village, village history, and village demography (population, and socio-economic activities). The experts used the collected information to finalize the FMP. Two weeks later, village assembly was convened in each village to discuss and approve the FMP. The VNRC and experts appeared before

community members and read the FMP. In every section of the plan, the reader asked community members if they had any question, input, opinion or concerns. Finally, the provisional FMP was approved at village level and forwarded to the District Council for endorsement.

6.3.3 Capability of VNRC members to replicate the inventory based participatory forest management planning

The VNRC members who participated in the participatory planning were asked whether they would be able to repeat the exercise with limited support from professional foresters. They were asked for their capabilities in various aspects of the participatory forest management planning. The results in Table 10 show that none of the VNRC member in all three villages thought they were capable of planning forest inventory that comprises preparation of scaled map and determination of the number of transects. All the respondents admitted that they were not involved in the planning process; the exercise was done by the experts. Interviews with the experts revealed that the preparation of the scaled map was done during the participatory village land use planning whereby participation of VNRC members was limited. It was also repeated during the demarcation of the VLFR where members' participation was limited as they mainly served as casual labourers of marking boundary trees by paint.

Table 11: Percent of participants who were able to do various steps for preparation of FMP

Steps of FMP preparation	Mindu	Namakambale	Songambele	Total
Planning forest inventory				
Preparation of scaled forest map	None	None	None	None
Estimation of number of transects	None	None	None	None
Actual forest inventory				
Using GPS to align inventory crew along the transect	None	None	None	None
Measuring CBH using tape measure	77%	82%	65%	75%
Tree identification by local/Swahili name	65%	47%	59%	57%
Recording trees names and corresponding CBH in the notebooks	65%	59%	53%	59%
Data analysis and FMP preparation				
Calculating inventoried area	None	None	None	None
Volume per hectare calculation	None	None	None	None
Stems per hectare calculation	None	None	None	None
Estimation of sustained yield	None	None	None	None
Preparation of FMP and bylaws	None	None	None	None

(Source: Own field survey, 2017)

The experts considered the production of scaled map as technical, and therefore, beyond the capacity of the local communities. However, interviews with VNRC members revealed that some had a view that if training on the use of GPS would be provided to them they could be able to do some activities such as collection of coordinates. Interviews with experts revealed further estimation of the number of transects which is required for forest inventory does not depend on fixed sampling intensity, rather it depends on the experience with forest condition (i.e. tree distribution) to be assessed.

The results in Table 10 show further there were four main activities, namely, the use of GPS to align inventory crew to walk abreast in transects of 10 m width, tree identification, measuring and recording CBH in the note book. Among these activities only the use of GPS to align inventory crew along transects was reported by all participants has been difficult for them. VNRC members were unable to use GPS because of lack of training on how to use it. It was observed that during the actual forest inventory the GPS was held by the expert who led the inventory crew to walk abreast along transects. Lack of enough time for them to be able to understand technical issues, which require computer literacy was cited as the reason for experts not teaching VNRC members the use of GPS. The results show further that three quarters (75%) of the VNRC members who participated in the actual forest inventory admitted to be capable of measuring tree CBH. However, the percentage of participants who were able to measure CBH varies across villages; the majority of members were reported to be able in Namakambale, followed by Mindu, and Songambebe.

The results show further that more than half of the participants were able to identify tree species, which are suitable for timber production during forest inventory. It should be noted that tree identification was not taught during the training session. Thus, those who considered themselves as able to identify trees used their local knowledge, which was acquired through long-term use of the forest resources. Out of the three villages, Namakambale reported to have the least proportion of VNRC members who were able to identify tree species. A plausible explanation for this trend could be that people in the village had limited connection with the forest as the majority buy forest products such as building materials and fuel wood (e.g. charcoal) from vendors. In this respect, during planning session of the actual forest inventory, the experts, in collaboration with the

village and VNRC leaders, decided to include one old man as a member of the inventory team who served as a local botanist.

Recording tree names and corresponding CBH in the notebooks was in practice done by two VNRC members in each village who were selected based on their ability to read and write. However, as shown in Table 10, more than half of the participants admitted to have been able to record tree names and corresponding CBH in the notebooks. The differences in percentage across the villages could be because of the differences in the level of literacy.

Table 10 shows the capability of VNRC members on the analysis of forest inventory data and FMP preparation. The analysis comprised the calculation of, inventoried area, stems, and volume per Ha, and the estimation of sustained yield and preparation of the FMP and bylaws. Interview results show that none of the VNRC members was able to do any of the tasks. During participant observation it was found that the inclusion of VNRC members in data analysis and preparation of the FMP was not given due attention by the experts. A three-day seminar was used by the experts to inform participants on how they estimated sustained yield, rather than engaging them in partnership in yield estimation in order to empower the participants. Essentially, the seminar was dominated by the experts who were describing what had been done since they departed with the data after finishing forest inventory (i.e. giving feedback), instead of engaging VNRC members on the actual activities. During focus group discussions, VNRC members admitted not to have been able to carry out basic activities in the preparation of FMP – and in processing and estimation of sustained yield of timber.

6.4 Discussion

The results indicate that training was rushed in the sense that it focused on only one aspect of forest inventory – measuring tree CBH that was taught for half a day leaving out practical use of GPS, estimation of the number of transects, and compilation and analysis of inventory data. The reduction of the costs of allowances to VNRC and daily subsistence allowances for experts amounting to 120 USD per day was cited as reasons for conducting the seminar on a crash programme based approach. Trainings were organized and conducted to prepare the VNRC members to carry out certain works, which would have been too expensive to hire experts. The same observation was made by other scholars (e.g. Mukama *et al.*, 2012; Zahabu, 2008; Holck, 2008; Skutsch, 2005) who report that the use of local community reduces the cost of forest assessment. Therefore, trainings were used as a means of reducing costs of forest planning through the reduction of the number of the experts involved. This is contrary to the primary objective of training in participatory planning – that is, empowering the local community in replicating the process (URT, 2005).

Several scholars who studied the implementation of the CBFM in Tanzania and elsewhere have pointed out that professionalization in community forestry that aims at imparting scientific knowledge to the local people through training, increases the costs of forest planning and implementation, and therefore, it delays the CBFM process of handing over forests to the local communities. For instance, according to Mustalahti and Lund, (2009), it took 13 years for villages of Angai forest to get FMP of 140,000 ha because neither the district nor the villages had TZS 180 million (USD 0.09 million) of funding the activity. It was also reported some resource-constrained foresters were forced to take shortcuts, which may affect the quality of the data from forest inventories (Hansen, 2004; Mathews, 2011; Rutt *et al.*, 2015).

The result also showed that trainees were introduced to locally available forest inventory materials to measure trees. Ball (2011) and URT (2005) also recommend for the use of the inventory materials, which are cheap and locally available. Both tailor's 1.5 m measuring tape and notebooks were reported to be available in the local stores in the villages. Unfortunately, the trainer did not pay attention on the sources of errors associated with the use of measuring tape. These include stem irregularities and how to measure in the presence of such irregularities or common mistakes including a tape "hanging" on the hidden side of a tree making the measurement becoming larger than the actual diameter of the tree. The results have shown further that the majority of VNRC members who received training were conversant with undertaking manual works - measuring and recording tree circumferences, which demand minimal skills and expertise. A similar observation was made by scholars such as Mukama *et al.* (2012), Zahabu (2008), Holck (2008), and Skutsch (2005).

The VNRC members were not trained on how to use GPS. Difficulty of understanding technical aspects was given as a reason, since the majority of the participants had only primary education. However, the reason provided was at variance with the findings of other studies that assessed the capability of local community to accurately assess and monitor forest resources. For instance, Mukama *et al.* (2012) in the study conducted in three villages owning and managing VLFRs in Liwale District found that between 40 and 30 percent of the VNRC who received a one-day practical training were able to use GPS to mark vegetation/stratum boundary. In addition, Skutsch (2005) and Zahabu (2008) report that local people with primary education are able to accurately map their forest resources using hand-held computers with geographic information system (GIS) capability. Furthermore, local people were considered not well educated, therefore were not trained on how to estimate the number of transects result. However, it was observed

that the estimation of the number of transects did not involve mathematical calculations, even VNRC members could do it if they would be capacitated to know the criteria to be considered: shape, and size of the forest (Ball, 2007). I argue that the knowledge was deliberately withheld, probably because the experts wanted to maintain their importance in planning forest inventories.

Furthermore, the results have shown that VNRC members are not capable of carrying out core activities of inventory and management planning - designing forest inventory including, leading the inventory crew to walk abreast within the transect, entering inventory data in the computer programme, analysing data, and to preparing the FMP. This belief promotes dominance of experts in inventory based forest management planning. The experts organized and conducted training in such a way that made the local people believe that the preparation of FMP is technical, and is thus beyond their capacity. As a result, whenever villages wanted to update their FMP, they would consult the experts to take a lead of the process. Consequently, in resource-constrained villages, FMPs are either not updated in time, or are updated without carrying out forest inventory. Scholars (e.g. Scheba and Mustalahti (2015); Lund (2015); Toft *et al.* (2015) highlight the role of professional knowledge and how it constrains the transfer of forest ownership rights to the local community and updating forest management plans. They also argue that training create an elite groups that latter dominates the committee as the election of new members is delayed because of lack of money to train them.

6.5 Conclusion and Recommendations

The paper illustrates the role of training in inventory based participatory forest management planning, particularly in the preparation of FMP in the VLFRs in Tanzania. The results show that the VNRC members received half day training and attended a three-

day seminar to prepare the FMP. The training they received was merely theoretical and focused on few aspects of forest inventory, mainly the materials used in the forest inventory and how to measure tree CBH. During the actual forest inventory, VNRC members were actively involved in tree identification, measuring, and recording of tree CBH. Neither training nor inventory exercise provided the opportunity for VNRC members to learn the uses of GPS, which is an essential tool in the inventory based forest management planning. The training, which was conducted to VNRC members, enabled them to undertake manual works mainly measuring and recording tree CBH, which require less skills and knowledge.

Professional foresters controlled core activities in the inventory based forest management planning – planning forest inventory, entering and analyzing data and preparing provisional FMP. The study concludes that the VNRC members served as casual labourers to reduce the cost in case such a work is carried out by experts. The training provided to VNRC members aimed at imparting skills that would enable members become effective casual labourers in return of allowances. The only thing that they learnt after training and fieldworks was measuring of tree CBH. In such a situation, experts are going to be demanded whenever the village wishes to update its FMP. There is a need of providing sufficient time and resources for training and practical in order to empower local people with relevant skills and knowledge, to enable them effectively participate in the planning process. In particular, local communities must effectively participate in the planning forest inventory (i.e. preparation of scaled forest map and estimation of number of transects) and in the actual forest inventory. Along with, provision of training to local communities on the use of mobile phone to collect inventory data and automatically analysing them, which is the simplified process since it eliminates the physical presence of professional foresters. Alternatively, deciding that the preparation of the FMP is not of participatory nature.

However, this option will increase expenses, but at least nobody is ATmade to believe that the process is participatory.

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CHAPTER SEVEN

7.0 MANUSCRIPT IV: Community forestry in context: how the Forest Management Plan prescriptions defy the reality of Tanzanian forests and communities

Abstract

This paper investigates the implementation of the forest management plan in community-based forest management in the case of the Sautimoja Village in Southern Tanzania. It empirically examines (i) how the prescriptions of forest management plan match with the realities of the local community and of the forest, and (ii) what happens when the implementation of the plan meets these realities. Data were collected through participant observations for six months, through in-depth interviews with the community and forest committee members, and a review of documents on the implementation of management plan. On forest patrols, the findings indicate that there is a much lower level of patrolling (49.9%) than envisaged in the plan. Inability of patrol guards to sanction livestock grazers was also observed in the forest. It was further found that frequency and intensity of forest fires declined not because of the implementation of the plan, rather because of the illegal grazing. The findings indicate further that the village has marketed 0.6 percent of 17, 591 m³ harvestable tree volume because of the presence of few buyers. The findings suggest a top-down forest management planning approach with little emphasis on local knowledge, practices, and livelihoods and has no or little relevance to the community. Therefore, the plans are partially followed, and when followed, they are modified to fit the local context. It is important to undertake a fundamental reform on regulations, guidelines, and practices for forest management planning approach to make it more flexible, inclusive, participatory, and relevant to the socio-economic context in which they are to function.

Keywords: *Tanzania, participatory forest management, scientific forestry, expertise, local knowledge*

7.1 INTRODUCTION AND BACKGROUND

7.1.1 Introduction

Over the last three decades, many countries have been engaged in various processes of decentralized forest management, often under the label of community forestry (CF). In such processes, a Forest Management Plan (FMP) is a prominent pre-requisite for local communities to attain user rights over a forest on a village land (Arnold, 2001; Movuh, 2012; Nightingale, 2005; Scheba and Mustalahti, 2015; Schroeder, 1999; Toft *et al.*, 2015). Many scholars have commented on and discussed the requirements of a FMP as a pre-requisite for handing over powers over forests to local communities and the appropriateness of a management plan in accordance with scientific forestry principles (Faye, 2015a; Klooster, 2002; Lund, 2015; Ojha, 2006; Rutt *et al.*, 2015; Scheba and Mustalahti, 2015). They also highlighted how forestry science in the CF defies its primary objective of promoting participation of local communities in the forest management planning, which gives the knowledge and practices of forestry experts an upper-hand (Chhetri *et al.*, 2012; Lund *et al.*, 2014; Lund and Saito-Jensen, 2013; Movuh, 2012; Nightingale, 2005; Toft *et al.*, 2015).

Although the FMPs are widely prepared and implemented in over 513 million hectares of the CF all over the world (Rights and Initiative, 2014), our knowledge on how the FMPs, which are largely prepared by experts (Scheba and Mustalahti, 2015; Toft *et al.*, 2015), match with the local realities of implementing communities and the forests they manage, is still limited. This article seeks to contribute to our understanding of these matters through a case study in one local community implementing the FMP in Southern

Tanzania. Previous studies focused on whether or not the FMPs are adhered to. For instance, scholars (e.g. Green and Lund (2015); Rutt *et al.* (2015); Sungusia and Lund (2016); Treue *et al.* (2014) focused on compliance with harvesting rules and found that local communities do not follow the FMP in terms of harvesting quota and minimum cutting diameter. Lund (2004) and Nightingale (2005) examined the implementation of rules that govern access to and use of the FMPs in Tanzania and Nepal respectively and found that elite groups in the communities had modified rules in order to fulfil their interests. Danielsen *et al.* (2013); Funder *et al.* (2013) and Topp-Jørgensen *et al.* (2005) focused on participatory monitoring schemes introduced in CF to monitor forest management and found that the monitoring scheme has been modified to fit the local context.

Furthermore, relatively few studies have explicitly addressed the reasons why local communities do not follow the FMPs. Among the reasons cited include, corruption (Perfect-Mrema, 2017), perceived low relevance of the prescriptions (Green and Lund, 2015; Klooster, 2002; Rutt *et al.*, 2015; Sungusia and Lund, 2016; Treue *et al.*, 2014), and modification of the prescriptions by local elite group in the community (Green and Lund, 2015; Lund, 2004; Nightingale, 2005). However, none of these studies looked in details on the harvesting rules, or enforcement of the FMP prescriptions. This article provides an in-depth analysis of the selected FMP prescriptions in order to understand the local perceptions of these requirements and how these perceptions fit the local realities. The emphasis in this article is therefore on not only whether the FMP prescriptions are actually implemented, but also on explaining why local practices divert from the planned prescriptions. The study focus on the following prescriptions; enforcement of the rules (forest patrolling), forest fire control, and harvesting rules for forest products, mainly timber.

Specifically, the study shows how the FMP prescriptions meet the realities of the local community in terms of history, social, economic, and cultural values on the utilization of the forest. It also shows financial and human resources available in observing the FMP prescriptions, and the realities of the forest in terms of its size and conditions vis-à-vis FMP prescriptions on resource utilization, particularly timber harvesting. The study shows further, the actual management practices, and how local communities react when FMP prescriptions defy their socio-economic realities and the reality of the forest.

7.1.2 Theoretical background: Community forestry in Tanzania and Sautimoja Village

Community forestry in Tanzania, popularly known as Participatory Forest Management (PFM), (Kajembe, *et al.*, 2005; Blomley and Iddi, 2009) encompasses two approaches: Joint Forest Management (JFM) and Community-Based Forest Management (CBFM) (Blomley and Ramadhani, 2007; Blomley, *et al.*, 2008; Blomley and Iddi, 2009). The latter takes place on the forests on a village land (URT, 1998; 2002), in other words, the rights to the forest are devolved to the local community, whereas the JFM entails a sharing of responsibilities (and some benefits) in either the national or local authority forest reserves (Mustalahti and Lund, 2009; Scheba and Mustalahti, 2015). This article focuses on CBFM whose development, conservation, management, and utilization of the forest resources found in their respective village land are the responsibilities of the respective communities.

The CBFM is a strategy of achieving sustainable forest management through Decentralization by Devolution (D by D) as a mechanism that involves integrating forest management in the local government decision making. The D by D integration process in the CBFM involves transferring of resources, tasks, and decision-making powers to

village governments that are largely or wholly independent from the central government and which are democratic to some degree. The forest laws that guide the implementation of the CBFM in Tanzania stipulate the following powers on the management of forest resources to be transferred to the village governments. 1) the powers of creating rules or modifying the old ones, 2) the powers of making decisions on how a particular resource or opportunity is to be used, and 3) the powers of implementing and ensuring compliance with the new or altered rules. Others include, 4) the powers of adjudicating disputes that arise from the efforts of creating rules and ensuring compliance (URT, 1998; 2001; 2002; 2007). These four types of powers correspond to legislative (creation of rules), executive (making, implementing, and enforcing of decisions), and judicial (adjudication of disputes) (Junge, 2001).

The implementation of the community forestry in Tanzania aims at addressing three policy goals: 1) improving forest condition, 2) improving forest governance, and 3) maintaining livelihood of forest adjacent communities through sustainable exploitation of the forest products from the VLFR for subsistence and cash income. A centrepiece of the CBFM is a local communities' participation in the establishment of a Village Land Forest Reserve (VLFR), including the preparation of the FMP. The participation of the community in the planning process aims at empowerment and allowing them to integrate their traditional²¹ and local knowledge²² in the forest management (URT, 2001). Its preparation is guided by the guidelines for CBFM of 2007, guidelines for participatory forest resources assessment (PFRA) and management planning of 2005, which is issued by Forestry and Beekeeping Division (FBD) of the Ministry of Natural Resources and

²¹ Traditional knowledge refers to knowledge that is based on an order, code or practice accepted by particular community from the past.

²² Local knowledge refers to the knowledge that people in a given community have developed over time, and continue to develop. It is based on experience, tested over time of use, adapted to the local culture and environment, embedded in community practices, and institutions, and held by individuals or communities (Dekens, 2007).

Tourism (MNRT). The establishment of VLFR in this case study (Sautimoja Village) started in 2014 by villagers in the village assembly, which approved 15 villagers who were nominated by the Village Council²³ to become members of the Village Natural Resources Committee (VNRC)²⁴. Thereafter, forest management planning to prepare the FMP begun.

The planning process was reported to be participatory as it involved four forestry technicians (henceforth experts), and 15 VNRC members. The planning was carried out in three phases. Phase I involved demarcation of the proposed VLFR. Phase II was mainly for forest inventory in order to generate precise and detailed information on frequencies and sizes of priority tree species for estimating the annual allowable cut (AAC). Phase III involved the analysis of forest inventory data and development of a provisional FMP. The provisional FMP was presented to the VNRC, Village Councillors, and to the Village Assembly for inputs and approval. Finally, the plan was submitted to the District Council for formalization and subsequent registration in the district VLFR register book. The overall objective of the FMP is to protect and preserve the VLFR in its present condition and improve living conditions of the current and future generations through sustainable use of forest resources. The FMP entails forest management prescriptions (i.e. do's and don'ts), AAC for a planning period, and minimum diameter for harvesting of 10 different tree species (Sautimoja FMP, 2015).

Immediately after formalization, the Village Council nominated a village member to be the commander of the patrol guards whose core functions were to organize forest patrol

²³ The village council is a corporate body at village level consists of 25 village council members (village councilors) who are elected by villagers through local government election. According to local government act number 7 of 1982, the village council is vested with all executive (institutional) power in respect of all the affairs and business of a village (URT, 1982).

²⁴ VNRC is a sub-committee of the village council and established in accordance with forest act number 14 of 2002 (URT, 2002) and CBFM guidelines for the establishment of the VLFRs (URT, 2007). The VNRC represents the entire community in a demarcation of the VLFR, forest management planning and implementation of the FMP.

teams that are responsible for undertaking forest patrols and for preparing patrol reports. Later, the village elected community members to serve as harvesting supervisors with the mandate of supervising harvesting operations.

7.2 Study Area and Methods

7.2.1 Study area

The study was conducted in a Sautimoja Village, one of the CBFM villages in Tunduru District. Two main reasons justify this choice. Firstly, it is one of a few villages in Tanzania that have completed the preparation of FMP. Thus, the village is an appropriate site of observing the actual implementation of the FMP. Secondly, the village had all relevant documents which are required for this study, and which include training manual, minutes of the meetings, training notes, and records keeping books.

Sautimoja Village is located in Tunduru District, Ruvuma Region in southern Tanzania (Fig. 12). The village is 90 Km east of Tunduru Town, along Masasi - Tunduru Road. The village, which covers an area of 28,000 Ha, was officially registered in 1999. It has four sub villages namely Amani, Shuleni, Misufin, and Jida and a population of 577 people and 182 households (Sautimoja PVLUP Report 2014). Most people in the village belong to the Makua ethnic group; a few belong to Wayao, Wangoni, and Wanyasa ethnic groups. Farming is the major source of livelihood. Food crops grown include maize, paddy, cassava, sweet potatoes, and pigeon peas, while cash crops are cashew nuts, sesame, and groundnuts. Other livelihood activities include livestock (mainly chicken), casual labour, petty trades, and handicrafts (Sautimoja FMP, 2015).

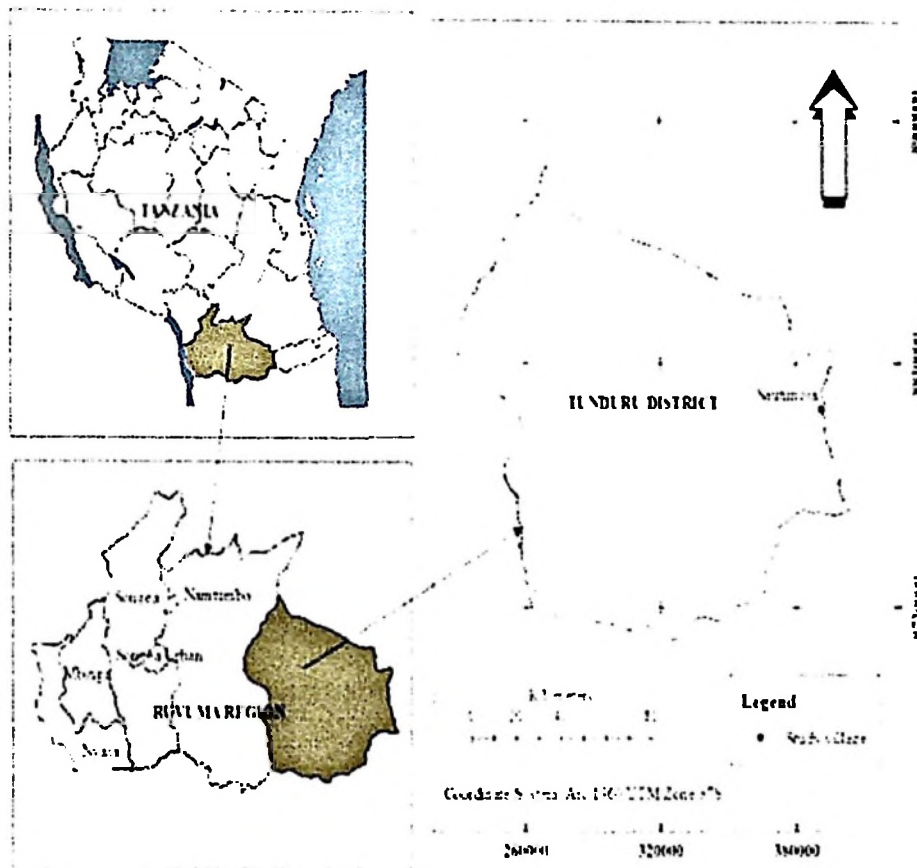


Figure 12: A map of the study area

7.2.2 Methods

The study is a detailed investigation of the first two years of the FMP implementation for Chihuruka VLFR. The data were collected in two phases. Phase one involved participant observation and interviews, while the second phase focused on a review of records and semi-structured interviews with participants about the planning and implementation. The first phase of fieldwork took place between October 2015 and March 2016 (six months) when the FMP was underway, and the implementation had started. The FMP was reviewed, and the researcher participated in and observed the implementation of the FMP prescriptions. The researcher also participated in and observed the process of enrolling the village in FSC group certification, the first timber harvesting (October 2015), and in the

village in May, July, and August 2016 for conducting interviews and observed second timber harvesting.

In phase two, between May and June 2017 (one month), the researcher examined the FMP prescriptions and what happened when the implementation of the plan met the realities of the local community and the forest. The first activity was to review record books: receipt book, permit book, minute book, patrol book, offenses and fines book, and income and expenditure book. Further, the review included sheets used to record timber harvesting, and reports on the village annual budget prepared by the Village Council and approved by the Village Assembly. All record keeping books and other reports were accessed from the village government office.

Furthermore, to access communities' perceptions on FMP prescriptions and differences between prescriptions on papers (i.e. FMP) and practice, the researcher carried out interviews in groups and individually with VNRC members, village leaders, representatives of the community, and key informants. Group interviews involved of 4 – 8 members. The interviews began with VNRC members, followed by village leaders, and communities. Group interviews with representatives of the community mainly involved community members who were engaged in the collection of forest products before the establishment of the VLFR. These were first identified through focus group discussions, which were carried out in 2015. The interviews involved elders (2 men and 2 women); youth (2 men and 2 women) and four ex-traders of forest produce (mainly timber, raffia, and bamboo). Seven individuals of different ages, sex, and income levels were interviewed. Interviews were conducted whenever the opportunity arose in an informal manner, yet the responses were noted down immediately after the interviews. In addition, key informant interviews with the existing and retired Nakapanya Divisional Forest

Officer, NGO staff, District Forest Officer, and VNRC chairperson and harvesting supervisors were carried out. The selection of key informants at village level was guided by researcher's in-depth knowledge of the village gained from phase one of the study. All interviews were conducted in Kiswahili.

All information collected was translated from Kiswahili to English and transcribed in Word. Subsequently, content analysis was applied to distil words into fewer content-related categories (Elo and Kyngäs, 2008). The aim was to identify categories and/or recurrent themes in the interview data. For the archival materials, a different type of content analysis was implemented whereby relevant key information such as frequency of forest patrols, people involved in forest patrols, permits issued, harvesting regulations, and revenue and expenditure was captured. This included entering of data in MS Excel spreadsheets for subsequent calculation of descriptive statistics.

7.3 Results: FMP Prescriptions in Theory and Practice

7.3.1 Enforcement of forest rules (forest patrols)

In the FMP, forest patrol is one of the activities of enforcing forest rules, in other words, discovering and sanctioning activities, which are considered illegal in the VLFR, including illegal harvesting of forest products (i.e. harvesting without permit), grazing, hunting, and the establishment of farms and settlements. The FMP prescribes a minimum of three patrols per month, and each patrol should comprise a patrol commander, three VNRC members and two "ordinary" villagers. To motivate the patrol team, the FMP prescribes an allowance of USD 4.5 for each patrol member per day (Sautimoja FMP, 2015).

However, records of the first 23 months of the FMP implementation - July 2015 to May 2017 - show a much lower level of patrolling (49.9%) than envisaged in the plan. According to the respondents, the mismatch is mainly due to the limited funds available to cover the operational costs of forest patrols. These include the costs of fueling two motorbikes that the village purchased to facilitate forest management activities, food, and allowance for patrol team; the total costs are estimated at USD 58 per patrol (Sautimoja Financial Report, 2017). A VNRC member had this to say:

"Our forest is too far from the village centre. It is about 50 km²⁵ away. We cannot walk to reach the forest. We normally use two motorbikes to transport the forest patrol guards, and because of the distance, the patrol team should take food to the forest. All these things need money. If VNRC has no money to buy food and petrol, we cannot patrol the forest as planned in the FMP".

To cope with the financial challenge, the VNRC in early 2016 decided to reduce the number of patrols from three to two per month. A VNRC member narrated:

"At the beginning, we did three patrols, but later we agreed to have only two patrols per month, which the experts also accepted".

Explaining the reason for the decision, another VNRC member said:

"When experts introduced another patrol - a bird patrol²⁶, the number of patrols increased to four per month, which we considered not necessary and not

²⁵ The distance of about 50 km here is referring to the distance by road which is used when patrol team visit the forest. The road was constructed in the 1970s by a logging company that harvested and transported logs from the forest to Tunduru Town. The same road was used to access the forest during the first and second forest harvesting operations.

²⁶ The bird patrol is carried out in the protection zone of the forest once per month to monitor the frequency of three bird species of particular interest namely Crested Guinea fowl (*Guttera pucherani*), African Broadbill (*Smithornis capensis*), and the Dark-backed Weaver (*Ploceus bicolor*) perceived as indicator species for good forest quality. The patrol is carried out to fulfill the requirement of FSC. It involves five people, and scheduled on 20th of every month. It is carried out during the early morning, thus, patrol guards are required to travel a day before and spend the night in the forest. The patrol guards are required to fill monitoring forms that report frequencies of three bird species and to submit the forms to the MCDI.

enforceable. We agreed to drop one forest patrol and replace it with a bird patrol”.

However, the decision violated Section 1.5 of the FMP which stipulates that any amendments to the FMP needs the approval of the Village Assembly (Sautimoja FMP, 2015).

During patrols, which were irregular though, the team observed and reported numerous infractions of the FMP rules. However, no culprits have been arrested and/or sanctioned. In the interviews, VNRC members reported to have lost the necessary powers and means of sanctioning the culprits. For example, a VNRC member narrated an incident where more than 30 young men from a neighbouring village attacked four VNRC members who were on patrol. In this incident, two patrol members were badly injured and two motorbikes were vandalized. Moreover, during the interviews it became apparent that the enforcement of some of the rules towards community membership is also a challenge. For example, the FMP requires community members to obtain written permit from VNRC before harvesting forest produce, including bamboo. An elderly participant had this to say:

“At the beginning, they told us that if we want to harvest even a bamboo for building a toilet, we should first report to the VNRC, otherwise, you would be forced to chew bamboo²⁷. For us, it was an annoyance. We told them that it is impossible for a villager to walk from his/her home to the office to seek for a permit to cut bamboo. When they realized that many villagers were angered, they relented”.

This extract suggests that the prescription was very new to local community who for many years have been collecting forest products for domestic use without been interrupted by

²⁷ Giving corporal punishment such as being beaten, and then arrested

forest officers who were stationed at ward and district levels. Therefore, the prescription defies the local realities and VNRC opted for not to enforcing it. A VNRC member said:

"We don't like our people to hate the project. If we decided to arrest and confiscate the forest products harvested illegally, they would not want the project because it defies their freedom to access the forest. He added, "Also, we know each other here, some they do it to earn subsistence income, and thus you cannot arrest and penalize such a person".

Moreover, the patrol guards have not been able to sanction livestock grazers even though herds of livestock were observed in the VLFR on every patrol. The reason given is inability to challenge the pastoralists who in most cases are armed with traditional weapons such as spears, bows, and arrows. One patrol member said:

"They [pastoralists²⁸] are armed with traditional weapons, to face them we must have modern weapons such as guns, but we don't have".

In early 2016, when the VNRC realized that it was not possible to evict or arrest pastoralists, the VNRC asked the Tunduru District Council (TDC) to deploy military force. The TDC only responded in February 2017 by sending a car with an armed police officers and two armed game officers who conducted a joint patrol with the patrol team that led to the arrest of one pastoralist who had established his home and farm in the VLFR. In this particular patrol, the village shouldered all the costs (fuel, food, and allowances) for the full patrol team. However, the intervention did not solve the problem,

²⁸ Livestock grazing in what is presently Sautimoja VLFR started in 2013, about two years before the establishment of the VLFR. Pastoralists are considered as outsiders who entered the area from the neighboring village Mkowela. So at the time of the establishment of the VLFR, pastoralists were already well established in the VLFR. Some of the pastoralists have attempted to apply for residential permit in Sautimoja Village, but have been rejected with reference to disharmony and environmental degradation. In a letter dated 18 March 2017 submitted to the Ministry of Natural Resources and Tourism and the Ministry of State, Vice President's Office – Union and Environment to seek for assistance, 12 pastoralists in the village with 4773 cattle, 3030 goats, and 988 sheep were reported.

and interviewed VNRC members suggest that more support that is external is needed. Recently, the village sought for further assistance, first from the Regional Secretariat, and later from the Ministry of Natural Resources and Tourism and the Ministry of State, Vice President's Office – Union and Environment. However, when this study was concluded in June 2017, no support had been given to the village and the challenge remained.

7.3.2 Controlling forest fires

Section 3.5 of the FMP cites fire as one among 15 activities, which are strictly prohibited within the VLFR, and with a penalty of USD 23.2 (Sautimoja FMP, 2015). The FMP also prescribes the following measures of mitigating fire: 1) making fire breaks around the forest, and 2) prescribing/controlling/early burning. The former involves removing of all combustible materials along the northern and western side of the VLFR, which border farmlands with a total length of 20 Km and width of 10 m. The latter involves controlled burnings of combustible materials to reduce its build-up. This measure is scheduled to take place immediately after the rainy season, that is, late June or early July every year. However, in the observed period between October 2015 and June 2017 neither of these activities was implemented. The annual cost of the fire control activities was estimated at USD 7, 482, which was considered prohibitive (Sautimoja Financial Report, 2017). Fire incidences were frequently observed during the fieldwork, mainly because of anthropogenic activities within and outside the VLFR, including the use of fire in honey harvesting. Perhaps surprisingly, the interviewees perceived a decrease in the number and strength of fires in recent years, which were however not attributed to the implementation of the FMP, but rather to the increased livestock pressure in the forest, which reduces the fuel load. Nevertheless, VNRC members still considered grazing as a violation of the FMP prescriptions.

7.3.3 Implementation of harvesting rules for timber

The FMP stipulates that any person wishing to harvest timber from the VLFR should first apply for harvesting license from the Village Council through the VNRC. If the application is approved, the applicant is notified and requested to pay for the corresponding stumpage fee into the VNRC bank account and submit a pay slip to the VNRC Accountant. The stumpage price of the timber is based on Government of Tanzania regulation²⁹ (Sautimoja FMP, 2015). With the terms fulfilled, the VNRC Accountant issues a license to the applicant, who would have 30 days of finishing the harvesting activity. In the actual harvesting operation, the harvesting supervisors are responsible for supervising the operation to ensure that principles of sustainable harvesting are adhered to. These include: (i) legal minimum girth/diameter for harvesting requirements (species specific) based on the harvesting plan and forest regulations of 2004 (URT, 2004), (ii) the timber processing should be carried out outside the forest, and in a case the processing is carried out within the forest, the buyer must fill the pits and remove all felling debris; and (iii) trees should not be felled close to rivers and or on steep slopes. In addition, the applicant must cover the costs of the Forest Officer who would hammer stumps, logs, and timber (URT, 2013).

The FMP indicated that the VLFR could support a sustainable harvest of 10 tree species making 12,485 stems (equivalent to 17,591 m³) for the first five years. However, the community was able to market 114 m³ of the timber volume (0.6% of the AAC) from the two species, *Pterocarpus angolensis* (Mninga), and *Afzelia quanzensis* (Mkongo), sold to two buyers from outside the district. The interview results suggest that the main reason for the limited number of buyers and timber sales was strict rules associated with timber

²⁹ The royalty is reduced to 20% of the government timber royalty rate if the applicant is the community members who wishes to harvest timber for construction purpose for the condition that the construction project must be started and within the village.

harvesting in the VLFR as opposed to the rules in the non-reserved forests; the rules in the former are difficult even for community members to adhere to. The results show that five traders from the village decided to quit the business after the establishment of the VLFR, one ex-timber trader said during interview:

"I don't have the capital needed. If I wanted to proceed with the business, I am supposed to have a big capital in order to comply with the rules and transport timber to be sold in Dar es Salaam. Before CBFM, timber from the forest were cheap, USD 1.5 per piece or even less. There were many pit sawyers. Initially, I bought timber from them; later I started my pit sawing crew. Because the price of timber was low, I sold them in Tunduru Town and earned a profit. Today, things have changed; the harvesting process is complex, making production cost higher. If you harvest timber here and sell it in Tunduru Town, you cannot get buyers because your timber will be expensive as compared to the timber from other villages and which are harvested from non-reserved forests".

The results show further that no community members have applied for harvesting licence to obtain timber for construction projects despite the reduced royalty unlike the commercial operators. The reason provided was that the cost of timber, after paying 20 percent and employing pit sawyers, is still higher than the price of timber harvested from both non-VLFR and illegal harvested timber from the VLFR. Therefore, community members preferred to buy timber harvested illegally from pit sawyers who have devised new ways of supplying timber. A VNRC member narrated:

"Near my house there is a path, where everyday around 7-9 pm I see people carrying timber, raffia, or bamboo. I just leave them, but if I wanted to confiscate, for instance timber, I could collect more than 100 pieces per week".

One of the pit sawyers said:

"We make timber once we receive an order from a buyer, who gives us the required size, tree species and quantity. We receive down payment, and the rest after a few days when we deliver the order. We normally deliver at night because timber harvesting is illegal in this village".

The sustainable harvesting requirements are said to be the main reason that forced even the first two buyers to shy away from the business in the village. Complaining about the difficulties encountered, the first buyer said:

"When I approached the village, they told me that the forest has many trees for harvesting. I agreed and paid for harvesting licence. When I wanted to start harvesting, they told me to pay for the forest officer from the district that stayed in the forest for hammering stumps and timber, which I had not envisaged. When we started harvesting, there were no sufficient trees to meet the order that I paid. We spent several days in the forest searching for trees".

The second buyer had a mobile sawmill, and his ambition was to harvest more than 3000 m³. As a pilot activity, he acquired a permit and paid for 70 m³. When harvesting was about to start, the issue of where to install sawmill created a huge debate between experts and the VNRC members on one side and the buyer on the other. The former insisted that the buyer should establish a landing site outside the VLFR where sawmill should be installed, the latter wanted to install inside the forest in order to reduce operational costs, such as hauling logs on poorly maintained forest roads. After a long discussion, the buyer was allowed to install his sawmill inside the VLFR on the condition that he would remove all debris to reduce fuel load, which was also tedious and costly.

As mentioned, only two tree species were harvested: Mninga and Mkongo. According to the FMP, the minimum harvesting girth limit for Mninga was 142 cm and 173 cm for Mkongo. Based on the inventory result, the sustainable yield (five years) for Mninga was 4,136 stems (4,939 m³), and for Mkongo was 167 stems (459 m³). The ratio of harvestable trees per hectare which is obtained after dividing the number of harvestable stems by the total size of the production forest (19,769 ha) was 1:4 (i.e. one harvestable tree of Mninga in every four hectares) and 1:118 (i.e. one tree of Mkongo in every 118 Ha).

However, these trees could not be found in the forest and there was no evidence (e.g. unstamped stumps) on whether those “bigger” trees were harvested illegally. In the first harvesting, for instance, the harvesting team spent two days in the forest without seeing any trees above the minimum girth limit. As one VNRC member said:

“We searched bigger trees in the forest for two days without seeing any, the buyer was freaked and started to complain that we are wasting his time and resources³⁰ and threatened to sue the village for conning. We finally decided to demolish the camp and go back to the village where we reported the matter to the VNRC leaders”.

In response to the problem, the VNRC leader sought technical advice from the experts who had developed the FMP. The VNRC leader explained:

“They [harvesting supervisors] came in the office furiously saying that there are no harvestable trees in the forest that the plan has prescribed, we must pay back the money to the buyer, otherwise, he would sue the village. I decided to call one of the experts who prepared the plan. I explained to him that our supervisors had not found harvestable trees in the forest. He assured me the presence of harvestable

³⁰ During the first harvesting operation, a buyer employed more than 10 pit sawyers and supplied them with food and water.

trees in the forest and advised to deploy more people for searching trees. We added 10 VNRC members, the next day they went back to the forest to search for trees. They managed to get a few big trees, which were very scattered".

Searching "bigger trees" was still difficult even though 10 additional persons were added to the team, and this considerably increased the costs of harvesting operation. In the end, it was decided that trees that have not attained the minimum girth limit to be harvested. The VNRC leader said:

"Later, they decided to harvest any mature tree regardless of its size".

Selection of mature trees was done based on local knowledge that the harvesting supervisors and pit sawyers had acquired through long term practical experience on timber production. These include observing external features of the trees and tasting (*Kuonja*) by checking depth of a sapwood. Table 11 presents the quantities of trees harvested in each girth class: below and above the minimum girth limits. The results show that the majority of trees harvested had girths below the required minimum. The decision to harvest "small trees" was taken in order to speed up the harvesting process, and therefore to reduce the costs of harvesting, including its supervision. A VNRC leader said:

"The FMP states that harvesting license is valid for 30 days, of which a buyer should finish all harvesting and transporting the timber outside the forest. If they did not take such decision, the harvesting would take more than three months and would be our fault".

To avoid the same problem in the second harvest, the VNRC employed personnel in advance to go to the forest to search and mark "bigger trees", yet – as Table 11 shows, the second felling included a majority of trees smaller than the minimum felling girth.

Table 12: Diameter of trees harvested in the two felling operations

Tree species	Girth classes	Phase I		Phase II		Total	
		No. of trees harvested	Percent	No. of trees harvested	Percent	No. of trees harvested	Percent
Mninga	<142 cm	27	52	90	70	117	65
	≥ 142 cm	25	48	38	30	63	35
	Total	52	100	128	100	180	100
Mkongo	<173 cm	5	71	1	14	6	43
	≥173 cm	2	29	6	86	8	57
	Total	7	100	7	100	14	100

Source: Village archives, 2015 and Own Survey Data, 2017

7.4 Discussion

The results illustrate a top-down forest management planning approach with little emphasis on local knowledge, practices and livelihoods. This resonates with Scheba and Mustalahti (2015); Bala (2015); Klooster (2002); Movuh (2012), who comment on the dominance of experts in forest management planning. In the specific case examined, most of the prescriptions are rooted in forest science, conservation laws, administrative circulars, decrees and guidelines rather than on local knowledge and practices. This include minimum felling girths, prohibition of grazing, controlling forest fires, and the requirement for written permits to harvest forest products for subsistence use (URT, 2002; 2004; 2007). The forest science manifests itself especially in the estimation of AACs and minimum felling girths (URT, 2005; Ball, 2009). Not all these requirements were ever discussed with the community during the “participatory” planning. This resonates with the findings in a study by Rutt *et al.* (2015) in Nepal, Sungusia and Lund (2016) and Scheba and Mustalahti (2015) in Tanzania, and Faye (2015b) in Senegal, who argue that forest bureaucracies use forest management planning in the community forests to further standards, and technical prescriptions. These findings provide a direct link back to the colonial forest planning, in Tanzania and in many other jurisdictions, where forest

bureaucracies instituted conservation laws based on scientific forestry that focused mainly on regulating access to save forests from what experts awkwardly term as “unsustainable exploitation of the forest resources and traditional land use practices” (Sunseri, 2003, 2009).

The results suggest that some of the expert-derived FMP prescriptions have little relevance to the members of the community because they do not fit well with the socio-economic and cultural history of the use and management of the forest. For instance, the requirement of written permit from VNRC is considered unjust, because it deprives the local people from their livelihoods. For many years, community members considered the forest as their natural asset whose forest resources have been accessed and used for improving their livelihood. The introduction of written permit was considered as a means of restricting them from accessing the forest. Therefore, they access forest illegally, and VNRC members have hesitated to enforce the rules, which can be translated as resistance to top-down FMP prescriptions (see Klooster, 2000; Peluso, 1992; Scott, 1998). In line with this, the VNRC members conceal such illegal activities from the spotlight of higher-level forest bureaucracy by not including it in the monthly reports. Along similar lines, the VNRC had changed the number of forest patrols from three to two per month without consulting the higher-level forest bureaucracy. This may be interpreted as subtle protest (see Holmes, 2007; Nielsen and Lund, 2012), meaning that local community secretly contested against the prescription stated in the FMP. This finding echoes the finding by Green and Lund (2015); Lund (2004) and Bala (2015), who observed that VNRC members in Kiwele Village in Iringa Rural District, Tanzania, criminalized the charcoal production and allowed grazing in the VLFR contrary to the prescriptions in the forest management plan.

The minimum felling girth requirement was considered irrelevant, and therefore not followed. Instead, trees were harvested based on harvesters' practical knowledge and experience on qualities of a tree to be harvested for timber production, which is having large proportion of heartwood as compared to sapwood as an indicator of tree maturity, a decision that has three implications. Firstly, it indicates that the local communities have substantial knowledge, which in most cases, is ignored in the planning process (Bala, 2015; Green and Lund, 2015; Sungusia and Lund, 2016). Secondly, experts who allow harvesting irregularities can be interpreted as not being sure themselves about the appropriateness of the AACs. This suggests that the FMP is substandard, which emanated from poorly conducted forest inventory - with insufficient sampling intensity and poor sampling design or from wrong yield estimation method. This finding is in line with the finding of other scholars who investigated forest planning and the FMP implementation in CF in Tanzania and elsewhere (see Rutt *et al.*, 2015; Sungusia and Lund, 2016; Toft *et al.*, 2015). Reasons for the production of substandard FMP are many, including inadequate human and financial resources that force experts into taking shortcuts. For example, adopting low sampling intensity that produces few plots that do not represent actual forest conditions to fulfill legal requirement (Baral *et al.*, 2017). This may point towards what Hemant Ojha called techno-bureaucratic doxa (Ojha, 2006), that drives experts into focus more on input, that is, application of forest science in any circumstance, rather than its outputs, that is, quality and applicability of the FMP.

Thirdly, the results suggest that the FMP prescriptions can be negotiated, changed, and eventually accepted by experts but that these changes are hidden from outsiders to maintain the status quo of the FMP – as a legally binding document that meets certain scientific standards. The same observation was made by Bala (2015); Green and Lund (2015); Lund (2004) in Tanzania, and Rutt *et al.* (2015); and Toft *et al.* (2015) in Nepal.

Further, Andrew Mathews in his book *Instituting Nature* (2011) reports similar situation and which is termed as production of ignorance as bureaucrats conjure up information to fit the requirements, as opposed to reporting what goes on (see Mathews, 2011).

This study has shown that VNRC members lack financial resources to implement the FMP prescriptions. The sole significant source of revenue, which in this case is selling timber, is severely challenged by the difficulty of attracting buyers. The village expected the annual revenues of between USD 260 000 and 750 000 but ended up earning USD 5 000 and USD 13,000 in the two harvesting operations (Sautimoja Financial Report, 2016; 2017). The gap between the expectations and the actual revenues is a consequence of followings: 1) strict rules that are governing timber harvesting in the VLFR, 2) existing timber market that does not take into account the type of forest management (timber price from certified forest versus from unreserved forest), and 3) the forest inventory that gives a false impression of the potential. The impression is false because it would not be feasible to harvest the full volumes because the trees are so scattered, something, which the inventory does not tell us anything about it. The strict rules resemble what Sungusia and Lund (2016) called “double standard” in harvesting regulations between the VLFR and forests on the general land. Consequently, buyers shy away from the VLFR to forests on general land. So even in a forest with potentially large volumes available for harvest, very limited revenues are generated for the management of the forest.

Furthermore, the persistence of illicit activities within the VLFR, for example, grazing and illegal logging is because of rules that are impossible to comply with, or enforce, combined with reluctance of the higher government levels to provide support. In fact, without government support, it is impossible, and definitely dangerous, to exert further pressure on the offenders. There are many incidences of violence implying potential of

risks of violent encounters related to law enforcement. Therefore, again, the plans are not implementable in given socio-environmental context; yet, people are still criminalized and thereby rendered vulnerable.

7.5 Implications of study for forest policy

The preparation of the FMP in Tanzania is guided by the two guidelines developed by the Forestry and Beekeeping Division (FBD): 1) guidelines for participatory forest resource assessment (PFRA) of 2005 and the CBFM guidelines for the establishment of the VLFR and Community Forest Reserves (CFRs) of 2007 (URT, 2005, 2007). In addition, there are forest laws, administrative circulars, and decrees. The processes of designing and writing are participatory, but *de facto* implementation provides local communities' little voice and opportunity of changing any core FMP prescriptions. Moreover, the estimation of sustained yield involves science of forest mensuration and yields the estimation to which local communities are invited as passive participants, and the final product, the harvesting plan, is not tabled for discussion during planning meetings. Ironically, it may be argued that the existing planning regulations serve as a barrier for local knowledge, practices and livelihood strategies to be considered since there is no room for manoeuvre.

The existing top-down forest management planning system, combined with limited financial resources, and lack of external support to community members, make it very difficult to make CBFM work, and therefore hampers the achievement of its promises – improving forest conditions, livelihood, and governance. With reference to the results and discussion presented in this paper, the implementation of expert-centered FMP prescriptions may end up in disarray, and any efforts that may not take into account local knowledge, practices, and livelihood strategies, may be costly. The existing planning system, whether wittingly or unwittingly, consolidates the state forestry and the powers of

the experts and the forestry bureaucracy (Neumann, 1997; Sunseri, 2003, 2009), rather than promoting the involvement of local community, as ultimate beneficiaries of the forest, in both the management and utilization of the forest resources.

Therefore, there is an urgent need of to re-thinking of forest laws, administrative circulars, and decrees that inform forest management planning approach in the CBFM to make them less standardized, and more dependent on local conditions and practices/priorities. A revised planning approach must provide more voice, independence, and freedom for the local communities to explore management alternatives as well as different sources of revenues to finance forest management, including controlled seasonal grazing (c.f. Bala (2015); Lund (2004); Magessa (2011)). Also, the financial and technical support from NGOs, donors, and government departments to the village should not just cover the planning phase; it should be extended to implementation.

7.6 Conclusion

The study has documented how FMP prescriptions match with local realities, and what happens when they meet with the realities of the local community and the forest. The results suggest a top-down planning approach with little emphasis on local knowledge, practices, and livelihoods. The process, while it is participatory in design, it is expert-driven in implementation and in many cases serves as a rubber stamp to allow for standard, technical prescription rooted in forest science, conservation laws, administrative circulars, decrees, and guidelines that are not participatory to dominate. The FMP prescriptions have little relevance to the local community. Therefore they are either not implementable or only partially serves as a guide for the forest management. The expert – cantered FMP prescriptions on timber harvest, the sole important source of cash income from the forest, has *de facto* acted as a barrier for the community to engage in timber

business because of the complex and strict harvesting regulations, which are unlike the case in non-reserved forests. Furthermore, the village lacks funds to finance management activities. Worse still, the support from NGOs, donors and government authorities to implement the FMP is very limited. Therefore, the study suggests that there is a need for fundamental reforms in the manner in which forest management planning is conducted, that would give more room and voice to the local community in the planning and setting of management prescriptions. The study also recommends that there is a need of setting aside timber market produced from well-managed forests. This would enable villages owning and managing forests, which are certified to generate sufficient fund to enable them implement forest management activities accordingly.

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CHAPTER EIGHT

8.0 KEY CONTRIBUTIONS, CONCLUSION AND RECOMMENDATIONS

8.1 Introduction

This chapter highlights key contributions of this study to the body of existing knowledge. It also outlines the areas that need further studies, and presents the conclusions and policy recommendations.

8.2 Key contributions of the present study

This study has shown that there is a difference between what is prescribed in the forest regulations and CBFM guidelines and what is actually practiced in the establishment of VLFRs. The study has confirmed early findings of similar studies conducted on the establishment of Wildlife Management Areas (WMA) (Bluwstein and Lund, 2016; Goldman, 2003, 2011; Igoe and Croucher, 2007; Loveless, 2014; Moyo *et al.*, 2016) that the participatory processes are rushed, and characterized by manipulation. The study contributed to knowledge on important factors that CBFM process need to consider in establishing VLFRs. Previous studies on the CBFM focused on participation during implementation (Kajembe *et al.*, 2005; Mbwapbo *et al.*, 2012; Nuru *et al.*, 2009; Raphael and Swai, 2009). This study on the other side demonstrated the importance of local communities' participation during the initial CBFM stages of establishing VLFRs, including formation of the VNRC, identification of forest area to be the VLFR, the demarcation of the proposed VLFR, resource assessment and declaration of the VLFRs. The study also adds knowledge on issues regarding the implementation of FPM, particularly the CBFM.

The study uncovered complex politics and challenges evolved in the process of creating community based conservation areas particularly VLFRs. Such challenges in many cases

are attributed to the presence of multiple conservation actors who compete over authority to claim and set aside protected areas in the village land, and the way conservation agenda is pushed and legitimized in villages. The agenda setting is done by outsiders; villagers are manipulated and dragged into approving it. These findings contribute to the ongoing debate on framing of the PFM, particularly the CBFM, on whether it promotes participation of the forest adjacent communities. For the first time in the history of Tanzania, the study has shown that local communities do not accept and approval conservation projects blindly, they contest it in different ways, including questioning the impact of the conservation project on their livelihood. However, in most cases their concerns are not taken into account because of the excessive pressure from different external stakeholders who are interested in village land. This finding confirmed the findings of similar studies conducted in the WMAs (Bluwstein and Lund, 2016; Igoe and Croucher, 2007; Loveless, 2014; Noe and Kangalawe, 2015) that showed that local communities are conned into accepting and approving conservation projects.

Furthermore, the study has shown how the VNRCs were trained to undertake forest inventory aiming at empowering the VNRC members to apply the knowledge and skills acquired to prepare FMPs by themselves or with limited technical support from the professional foresters. However, the primary objective of the training was not achieved as VNRC members have acquired only practical hard skills (manual work) such as measuring tree circumference, but not soft skills such as mapping the forest and analysing forest inventory data. Thus, the dependence on professional foresters would continue whenever FMP is renewed. It was also observed that trainings provided to VNRC members were costly, which contributed to the delay of carrying out CBFM process of transferring ownership of forest management to the villages.

The study has also shown that the forest management plan was actually designed to meet government legal requirement of declaring the VLFRs and not informing on day-to-day forest management activities. This is because the plan is too technical for the local communities and that its prescriptions defy the reality of Tanzanian forests and communities. The majority of the prescriptions had little emphasis on local knowledge, practices, and livelihoods as they are rooted in a top down planning process with emphasis on forest science, conservation laws, administrative circulars, decrees, and guidelines. To the local communities, these prescriptions are considered irrelevant since they do not fit with the local context. This finding confirmed early findings on community forestry by studies conducted outside Tanzania (Baral *et al.*, 2017; Nightingale, 2005; Ojha, 2006; Rutt *et al.*, 2015; Toft *et al.*, 2015) that forest management plans are only used to formalize forest management and not to inform the day to day forest management decision. The study demonstrated further that local communities are not empty; they have knowledge and practical experience on using and managing forest resources sustainably (see Lund *et al.* 2014; Green and Lund, 2015). Therefore, they are able to modify scientific prescriptions to fit with the local context. This also confirmed the findings by other studies on forest management reported that local communities have practical knowledge on the management of forest resources (Baral *et al.*, 2017; Kajembe, 1994; Rutt *et al.*, 2015).

To the best of my knowledge, this study is probably the first in Tanzania on describing and discussing the CBFM processes that lead to the establishment of VLFRs in Tanzania. The information presented and discussed in this study can be used as inputs of improving forest regulations and CBFM guidelines. The study has shown that the CBFM projects are accepted based on financial enticement, the processes are rushed and local communities are manipulated and conned, and therefore the whole processes is not fully inclusive and

participatory. This has made the local communities as rubber stamps of approving what has already been decided. This information is particularly very useful to policy makers and planners and researchers who may need to improve CBFM guidelines in order to attain genuine participation. The study has shown further those forest management plans are partially implemented because they are contrary to the reality of the communities and the forest. This information is important to the government, NGOs and other development actors who facilitated forest management planning.

8.3 Areas for further studies

There is a need for further studies (researches) on the CBFM processes that leads to the establishment of the VLFRs as well as their implementation in Tanzania. These areas include:

1. This study focused on who participated in the CBFM processes and who had influence in the process. The study had showed that very few people attended the meeting to discuss and approve the CBFM project. Participation of even those who attended the meeting was nominal as the process was controlled by outsiders and a few elites from the village who benefited by the project. A further study is needed to assess the determinants of participation in order to explain explicitly the factors influencing peoples' participation in the planning process.
2. The study showed that the Forest Management Plan, which is prepared to inform the day-to-day forest management activities, is partially used as local communities used local knowledge and practical experience in forest management. Thus, in the actual management of the VLFRs both written and unwritten forest management prescriptions are applied. This study did not assess the impact of blending written and unwritten forest management prescriptions on forest condition. Even previous studies did not pay attention to such management practices. Therefore, there is a

need for a study to examine forest conditions as the outcomes of the actual forest management practices.

3. The study indicates that the idea of establishing the VLFR did not originate from the local communities, instead it originated from outsiders who were interested in setting aside protected areas on village land. In soliciting the support of local communities, facilitators used several strategies, including telling local communities that the project would bring money to the village through harvesting and selling of timber. Thus, the CBFM was accepted on the ground that it would generate financial incentives. A study is needed to assess the impact of the CBFM in areas where the expected benefits are delayed to be realized because the harvesting has not commenced because of lack of harvesting plans, timber buyers, or hammer for VLFR.
4. Furthermore, assuring local communities that they have the powers of revoking part of or a whole LFR at any time to accommodate new increasing demand of land for expansion of agricultural land was another strategy used by facilitators to persuade local communities into accepting the project. A study is needed to assess whether such promises have ever been fulfilled in the old CBFM villages (VLFRs) such as SULEDO, Migori, Duru Haitemba, Kiwele, Mfyome, and Nyang'oro and how they are currently affecting the management of VLFRs in Tanzania.
5. Moreover, the comparative study is needed on sustainable harvesting of forest managed by local communities using traditional knowledge and local communities using FPM.

8.4 Conclusions

The main objective of this study was to assess the levels of participation of local communities in the CBFM at the village level in Tanzania. The following conclusions have been drawn from the specific objectives.

8.4.1 Local communities' participation in the CBFM process to establish the VLFR

The study conclude that the community members in the two villages of Tunduru District have never expressed interest in establishing the VLFR. The idea was introduced to the villages by external stakeholders. To make the idea accepted at the village level, external stakeholders used financial, structural, and institutional powers to manipulate local communities into accepting and approving the establishment of the VLFR. At the village assemblies, the CBFM process had never reached communities' consensus as the assemblies were characterized by manipulation, informing and therapy, which implies non-participation.

In addition, the CBFM was accepted on the ground that it would bring revenue to the villages through the selling of forest produce. With this regard, the primary output of which the community are expecting from the VLFRs is revenue; the revenues that would be used to cover costs of managing the VLFR, including paying allowance for VNRC during forest patrols and harvesting supervision. Thus, effective management of the VLFR would depend on the availability of revenue and not communities' commitment. Any delay of realizing financial benefits, may drive the community either into undertaking illegal activities or a failure of managing the VLFR at all.

8.4.2 Politics in the participation of the local community during the CBFM process of establishing the VLFR

The study conclude that the processes of establishing CBC areas in Machemba Village started at District level and brought to the communities; once the agenda was accepted and the village leaders were on board, the process was rushed, and therefore created political struggles and resource conflicts.

8.4.3 Trainings provided by professional foresters to VNRCs during the establishment of the VLFR

The study concludes that training was provided to VNRC members to make them become effective casual labourers in return of allowances. Through training, the majority of the VNRC members in all studied villages were only able to measure tree circumference at breast height. In such situation, experts will continue to be demanded whenever the village wishes to update its FMP.

8.4.4 Local communities' participation in the implementation of the FMP and whether their management practices comply with de jure FMP prescriptions and why

The study concludes that forest management prescriptions prescribed in the forest management plans have little relevance to the local community, and therefore are partially followed as they defy the reality of Tanzanian forests and communities. The study further concludes that some forest management plan act as a barrier against timber trade as harvesting regulations are complex and difficult to be met by timber buyers, thus village lacks the fund of financing forest management activities.

8.5 Recommendations

Based on the conclusions of this study, the study has the following recommendations in order to ensure that the CBFM can deliver three policy goals – improve forest condition, livelihood, and forest governance:

1. The local community should actively participate in the establishment of the VLFR. This can be achieved through revising the CBFM guidelines. The guidelines should explicitly describe procedures of identifying social groups in the community with diverse interests over forest (stakeholder analysis), and their representation in the forest related committees (e.g. VNRC and VLUMC) in order to defend their interests during planning process.
2. There is a need of providing sufficient time and resources for training in theory and practice in order to empower local people with relevant skills and knowledge, to enable them effectively participate in the planning process. Alternatively, there is a need of making the work of preparing FMP simpler with less training requirements (i.e. less cost) and truly participatory forestry.
3. The need of finding alternative sources of revenues such as allowing seasonal grazing, which is criminalized based on the forest laws. This can be achieved through revising forest regulations in order to provide more voice, independence, and freedom for local communities to explore management alternatives as well as different sources of revenues to finance forest management, including controlled seasonal grazing. In addition, the financial and technical support from external stakeholders to the CBFM village should not just end at the planning phase; it should be extended to the implementation in order to make CBFM active.
4. Reforming planning process by putting more emphasis on bottom up approach of which local community are given more room to discuss and set forest management prescriptions that fit well with conditions of the forest and local context.

Additionally, forest regulations and the CBFM guidelines should allow flexibility in forest planning by allowing the inclusion of local knowledge and practices. Thus, the management prescriptions will not be uniform all over Tanzania as it is now; instead, it would vary based on the local context.

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APPENDICES

Appendix 1: Checklist for Elders (Less than 35 years and above 35 years) about their participation in CBFM process

Section A: Information about economic groups

1. What are the roles of elders in the community?
2. Is there elders' council in this village? If
3. What are the roles of elders' council?

Section B: Establishment of CBFM

1. What do elders demand from forest?
2. How much do they demand per annual?
3. Which forests have been supplying your demands?
4. What are formal/informal procedures guiding collection/harvesting of products/services from aforesaid forests?
5. What skills and knowledge do you have about use of forest?
6. What skills and knowledge do you have about management of forest?
7. What do you know about: a) FMP; b) Bylaws; c) VLFR?
8. How were you informed about CBFM meetings?
9. Was the meeting time suitable for you and other members of your group to attend?
10. Did you know agenda of the meetings before?
11. If YES, did you discuss with family/group about meeting agenda before?
12. What were wishes of elders to be included in the FMP?
13. Do you think that the meetings provided a room for elders to rise voice about their wishes? Why/why not?
14. Were you satisfied with facilitation of the meeting in order to make elders participate?
15. Do you think there were people dominated the discussions in the meetings?

16. If YES, who are they (i.e. their social status and why?)
17. Do you know a number and names of villagers forming VNRC, and PFRA team?
18. If YES, do you think number of elders in the VNRC is sufficient?
19. Do you think election of forest committees taken into account representation of elders?
20. What challenges has affected participation of elders in CBFM process?
21. Do you think what should be done to improve participation elders?
22. Does CBFM important to elders?

Appendix 2: Checklist for Women (Less than 35 years and above 35 years) about their participation in the CBFM process

Section A: Information about economic groups

1. What are formal and informal women's economic groups available in the village?
2. What are the names of groups and composition (e.g. age and gender)?
3. What are they doing?

Section B: CBFM process to establish VLFR

4. What do women demand from forest?
5. How much do they demand per annual?
6. Which forests have been supplying your demands?
7. What are formal/informal procedures guiding collection/harvesting of products/services from aforesaid forests?
8. What skills and knowledge do you have about use of forest?
9. What skills and knowledge do you have about management of forest?
10. What do you know about: a) FMP; b) Bylaws; c) VLFR?
11. How were you informed about CBFM meetings?
12. Was the meeting time suitable for you and other members of your group to attend?
13. Did you know agenda of the meetings before?
14. If YES, did you discuss with family/group about meeting agenda before?
15. What were wishes of women to be included in the FMP?
16. Do you think that the meetings provided a room for women to rise voice about their wishes? Why/why not?
17. Were you satisfied with facilitation of the meeting in order to make women participate?
18. Do you think there were people dominated the discussions in the meetings?
19. If YES, who are they (i.e. their social status and why?)

20. Do you know a number and names of villagers forming VNRC, and PFRA team?
21. If YES, do you think number of women in the VNRC is sufficient?
22. Do you think election of forest committees taken into account representation of women?
23. What challenges has affected participation of women in CBFM process?
24. Do you think what should be done to improve participation women?
25. Does CBFM important to women?

Appendix 3: Structured questionnaire for household survey in Sautimoja and Machemba villages

1	INTRODUCTORY INFORMATION TO RESPONDENT
My name is NUMAN AMANZI. I am a PhD student from Sokoine University of Agriculture (SUA) working with Community Based Forest Management (CBFM) in two villages of Tunduru District. I have come to your household to ask you some questions on how you have been participating in CBFM. It means establishment of Village Natural Resource Committee (VNRC), demarcation of VLFR and development of forest management and harvesting plans. Your answers in the interview will be confidential and will only be used for research purposes. Would you like to answer the questions of the interview? The interview will take around 60 minutes.	

2	SURVEY IDENTIFICATION		
2.1	Household number		
2.2	Date and start time	Date:	Start time:
2.3	Name of interviewer		
2.4	Name of interviewee		
2.5	Name of district and division	District: Tunduru	Division:
2.6	Name of location and village	Ward:	Village: Sautimoja
2.7	Name of sub village	Sub village:	
2.8	GPS Location	Easting:	Northings:
2.9	Estimated distance to a place of village assembly		
2.10	Wealth category	Before survey:	After survey:

3	HOUSEHOLD CHARACTERISTICS				
3.1	Sex and age of respondent	☐ 1. Man	☐ 2. Woman	Age:	
3.2	Are you the head of household?	☐ 1. Yes ☐ 2. No			
3.3	Marital status of respondent	☐ 1. Married (single wife) ☐ 4. Widow/widower ☐ 2. Married (multiple wives, specify.....) ☐ 3. Single ☐ 5. Divorced/separated ☐ 6. Cohabiting			
3.4	Tribe of respondent				
3.5	Education level of respondent	☐ 1. None ☐ 4. Secondary (A-level) ☐ 2. Primary ☐ 5. College ☐ 3. Secondary (O-level) ☐ 6. University			
3.6	Education level of spouse	☐ 1. None ☐ 4. Secondary (A-level) ☐ 2. Primary ☐ 5. College ☐ 3. Secondary (O-level) ☐ 6. University			
3.7	Household composition	Age categories	Male	Female	Total
		Under 5			
		6 - 17			
		18-45			
		46-60			
		Above 60			
		Total			
3.8	Estimated walking hours from your house to where village assembly are convened (meeting place)				

4	HOUSEHOLD HISTORY	
4.1	What is your place of birth?	☐ 1. In this village. ☐ 2. Outside the village
4.2	When did you start your own household?	
4.3	How did you start your own household? Please read all the options and tick accordingly!	☐ 1. After building your own house ☐ 2. After starting your farm ☐ 3. After renting house/room ☐ 4. After getting married ☐ 5. Others (Specify)
4.4	Where was that? (If in present village, go to 4.8)	☐ 1. In present village ☐ 2. In another village/town
4.5	What were your main economic activities in that place?	
4.6	When did you leave that place?	
4.7	Why did you leave that place?	
4.8	Have you and your household also lived in any other place? (If 'No': Go to next section)	☐ 1. Yes ☐ 2. No
4.9	Where was that?	
4.10	What were your main economic activities in that place?	
4.11	When did you move to that place?	
4.12	When did you leave that place?	
4.13	Why did you leave that place?	

5	HOUSE AND ITS FACILITIES		
5.1	Of which material are the walls of your house (mainly) made? If possible, just observe!	☐ 1. Burned bricks ☐ 2. Unburned bricks ☐ 3. Block	☐ 4. Poles + Mud ☐ 5. Poles ☐ 6. Other:
5.2	Of which material is the roof (mainly) made? If possible, just observe!	☐ 1. Iron sheet ☐ 2. Tiles ☐ 3. Grass thatched	☐ 4. Coconut fronds ☐ 5. Old tins ☐ 6. Other:
5.3	Of which material is the floor made?	☐ 1. Cemented/concrete ☐ 2. Soil	☐ 3. Tiled ☐ 4. Other:
5.4	Which of the following items do you have in your home? Please read all the options and tick accordingly!	☐ 1. Bed made of timber ☐ 2. Bed made of poles ☐ 3. Tables ☐ 4. Sofa set/coach ☐ 5. TV ☐ 6. Mobile Phone	☐ 7. Radio ☐ 8. Electricity ☐ 9. Solar panels or batteries ☐ 10. Sewing machine ☐ 11. Other
5.5	Which of the following means of transport do you own and use?	☐ 1. None ☐ 2. Bicycle ☐ 3. Motorcycle	☐ 4. Car ☐ 5. Other (specify).....
5.6	Which of the following farming tools do you use for tilling land in your farm?		☐ 1. Hand hoe ☐ 2. Power tiller/tractor
5.7	Which of the following farming improvement techniques did you for last farming season in any of your farm?		☐ 1. None ☐ 2. Herbicides ☐ 3. Pesticides ☐ 4. Inorganic fertilizers
5.8	How many meals do you get per day in rainy and dry season?		Dry season: Rainy season:
5.9	What is your main source of lighting?	☐ 1. Tin with paraffin ☐ 2. Improved oil lamp ☐ 3. Candle	☐ 4. Gas lamp ☐ 5. Electricity (solar/batt) ☐ 6. Other:
5.10	What is the most common source of fuel used by your household for cooking and heating?	☐ 1. Firewood ☐ 2. Charcoal	☐ 3. Kerosene ☐ 4. Other:
5.11	Where do you collect firewood?	☐ 1. Shamba / farm ☐ 2. Forest reserve	☐ 3. VLFR ☐ 4. Open forest on village land
5.12	How long time does it take you to collect firewood?		

6 SOURCES OF CASH AND NON-CASH INCOME					
6.1	Sources of cash and subsistence	Cash	Subsistence	Frequency per year	Ranking
	Crop production				
	Vegetable production				
	Buying and selling crops (crop trading)				
	Casual labour: specify.....				
	Salary (formal employment)				
	Pension				
	Remittances				
	Petty business: specify.....				
	Livestock keeping				
	Collection and selling forest products				
	Handicraft				
	Fishing				
	Others:				
6.2	Is any household member part of a farming group?			☐ 1. Yes ☐ 2. No	
6.3	Did any of you work on other people's farms in exchange for food in last year?			☐ 1. Yes ☐ 2. No	
6.4	Did you get any goods (incl. foodstuff) by exchanging them for other goods (bartering) in last year?			☐ 1. Yes ☐ 2. No	
6.5	Did you receive any food aid for the past five year?			☐ 1. Yes ☐ 2. No	
6.6	If yes: Which goods did you give and which goods did you receive?				

7 ACCESS TO AND USE OF THE LAND					
7.1	Does your household have plot in this villages for building house?			☐ 1. Yes ☐ 2. No	
7.2	Does your household have land in this village for crop production?			☐ 1. Yes ☐ 2. No	
7.3	If YES in 7.1 and 7.2, please state land size, acquisition and estimated walking time from home?				
	Land use type	Size in acres	Acquisition*	Walking time	
	Plot for building a house			Not applicable	
	Dimbe (Land for paddy production)				
	Land for permanent crop (e.g. cashew nut)				
	Land for annual: crop (e.g. maize, sesame)				
*Land acquisition: 1. Inheritance 2. Allocated by village government 3. Bought 4. Illegally clearing forest 5. Rented (tenant farming) 6. Others, specify.....					
7.4	Fill a table below by providing required information about crop production for your household as per period of January-December, 2015?				
	Crop	Farm size	Uses (1. Cash; 2. Subsistence)	Yield last year	*Type of farming

*1: Monoculture; 2: Mixed farming

[illegible]

10	HOUSEHOLD POLITICAL AND ADMISTRATIVE AFFILIATION				
10.1	Are you or anybody from your household ever hold any of the following political position within or outside the village?				
	Political position	1. Yes	2. No	Year	Party
	Party chairperson				
	Party secretary				
	A member with membership card				
10.2	Are you or anybody from your household ever hold any of the following administrative position within or outside the village?				
	Administrative position	1. Yes	2. No	Year	Place
	Sub village chairperson				
	Member of Village Council				
	Village Chairperson				
	Village Executive Officer (VEO)				
	Ward Executive Officer (WEO)				
	Ward Chancellor				
	Member of parliament (MP)				
	Retired public servant (e.g. teacher, police, etc)				
	Others:				

11	AWARENESS ON PLUM AND CBFM	
11.1	Do you know that this village has Village Land Use Plan (LUP)?	☐ 1. Yes ☐ 2. No
11.2	If YES, how did you first hear of LUP?	☐ 1. At sub village meeting ☐ 2. At village meeting ☐ 3. Friend/family member/neighbour
11.3	Do you know that in this village there is VLUMC?	☐ 1. Yes ☐ 2. No
11.4	Do you know different land use categories in LUP?	☐ 1. Yes ☐ 2. No
11.5	Do you know that MCDI have been facilitating CBFM in this village?	☐ 1. Yes ☐ 2. No
11.6	If YES, how did you first hear of CBFM?	☐ 1. At sub village meeting ☐ 2. At village meeting ☐ 3. Friend/family member/neighbour
11.7	Do you know that in this village has VLFR?	☐ 1. Yes ☐ 2. No
11.8	If YES, how did you first hear of VLFR?	☐ 1. At sub village meeting ☐ 2. At village meeting ☐ 3. Friend/family member/neighbour
11.9	If YES, do you know where the VLFR is?	☐ 1. Yes ☐ 2. No
11.10	Do you know that in this village there is VNRC?	☐ 1. Yes ☐ 2. No
11.11	If YES, do you know how many members VNRC has?	☐ 1. Yes ☐ 2. No
11.12	If YES, how many?	
11.13	Do you know that in this village there is Harvesting Supervision Committee (HSC)?	☐ 1. Yes ☐ 2. No
11.14	If YES, how did you first hear of HSC?	☐ 1. At sub village meeting ☐ 2. At village meeting ☐ 3. Friend/family member/neighbour
11.15	If YES, do you know how many members HSC has?	☐ 1. Yes ☐ 2. No
11.16	If YES, how many?	

12	PARTICIPATION: MEMBERSHIP OF THE NATURAL RESOURCE COMMITTEES	
12.1	Are you or anybody from your household ever been a member of Village Council? E.g. husband, spouse, son, daughter, etc.	☐ 1. Yes, please specify _____ ☐ 2. No
12.2	Are you or anybody from your household ever been a member of VNRC? E.g. husband, spouse, son, daughter, etc.	☐ 1. Yes, please specify _____ ☐ 2. No
12.3	Are you or anybody from your household ever been a member of PFRA team E.g. husband, spouse, son, daughter, etc.	☐ 1. Yes, please specify _____ ☐ 2. No
12.4	Are you or anybody from your household ever been a member of VLUMC? E.g. husband, spouse, son, daughter, etc.	☐ 1. Yes, please specify _____ ☐ 2. No
12.5	Is anybody in the household participated in CBFM planning as official/ordinary member of planning team?	
	Being a member of Land use planning team	☐ 1. Yes ☐ 2. No
	Being a member of PFRA team/VNRC	☐ 1. Yes ☐ 2. No
12.6	Is anybody in the household a member of beekeeping group, traditional healers, traditional elders or any other group?	☐ 1. Yes, please specify _____ ☐ 2. No

13	PARTICIPATION: ATTENDING PLUM AND CBFM MEETINGS IN SAUTIMOJA			
13.1	Is anybody in the household participated in following activities about PLUM and CBFM?			
	PLUM and CBFM activities for the period of 2014-2015	Response	If NO, why (Reason*)	
	Awareness creation meeting about LUP and election of VLUMC on 26 th June, 2014.	☐ 1. Yes ☐ 2. No	☐ 1 ☐ 2	☐ 3 ☐ 4 ☐ 5 ☐ 6
	Discussion and approval of the draft of LUP and bylaws on 3 th July, 2014.	☐ 1. Yes ☐ 2. No	☐ 1 ☐ 2	☐ 3 ☐ 4 ☐ 5 ☐ 6
	Awareness creation meeting about CBFM and election of VNRC on 6 th May, 2014.	☐ 1. Yes ☐ 2. No	☐ 1 ☐ 2	☐ 3 ☐ 4 ☐ 5 ☐ 6
	Discussing and approving FMP and forest bylaws on 27 th February, 2015.	☐ 1. Yes ☐ 2. No	☐ 1 ☐ 2	☐ 3 ☐ 4 ☐ 5 ☐ 6
	Handing over of VLFR and election of Harvesting and Supervision Committees on 9 th June, 2015.	☐ 1. Yes ☐ 2. No	☐ 1 ☐ 2	☐ 3 ☐ 4 ☐ 5 ☐ 6
	*Reason:	1. Not informed 2. Informed but I was busy 3. Informed but I was not interested	4. Not informed because I was away 5. Informed but I was away 6. Others, specify	
13.2	What is your opinion on the local people involvement in the CBFM process?			
	Item	Very satisfactory	Satisfactory	Unsatisfactory
	Dissemination of meetings' information			
	A way of disseminating meeting agenda			
	A way of collecting inputs from people			
	A way of electing committee members			
	A way of reaching consensus			
	Representation in VNRC/HSC			
13.3	Please indicate whether or not you consider the following to be obstacles to participation in this village			
	Issues	Is this an obstacle? 1. Yes 2. No	If Yes, what is the degree of impact 1=Very serious 2=Somewhat serious 3=Not serious 4=Not applicable	
	Political conditions (e.g. political divisions among villagers)			
	Cultural matters (e.g. not allowing women to speak in front of men)			
	Poor leadership (e.g. leaders does not mobilize villagers to attend meetings)			
	Ignorance (e.g. not knowing importance of the meetings)			

13	PARTICIPATION: ATTENDING PLUM AND CBFM MEETINGS IN MACHEMBA			
13.1	Is anybody in the household participated in following activities about PLUM and CBFM?			
	PLUM and CBFM activities for the period of 2014-2015	Response	If NO, why (Reason*)	
	Awareness creation meeting about LUP and election of VLUMC on 8 th October 2013.	☐ 1. Yes ☐ 2. No	☐ 1 ☐ 2	☐ 3 ☐ 4
	Discussion and approval of the draft of LUP and bylaws on 13 th October, 2013.	☐ 1. Yes ☐ 2. No	☐ 1 ☐ 2	☐ 3 ☐ 4
	Awareness creation meeting about CBFM and election of VNRC on 5 th March 2014.	☐ 1. Yes ☐ 2. No	☐ 1 ☐ 2	☐ 3 ☐ 4
	Discussing and approving FMP and forest bylaws on 6 th March 2015.	☐ 1. Yes ☐ 2. No	☐ 1 ☐ 2	☐ 3 ☐ 4
	Handing over of VLFR and election of Harvesting and Supervision Committees on 16 th June, 2015.	☐ 1. Yes ☐ 2. No	☐ 1 ☐ 2	☐ 3 ☐ 4
	*Reason:	1. Not informed 2. Informed but I was busy 3. Informed but I was not interested	4. Not informed because I was away 5. Informed but I was away 6. Others, specify	
13.2	What is your opinion on the local people involvement in the CBFM process?			
	Item	Very satisfactory	Satisfactory	Unsatisfactory
	Dissemination of meetings' information			
	A way of disseminating meeting agenda			
	A way of collecting inputs from people			
	A way of electing committee members			
	A way of reaching consensus			
	Representation in VNRC/HSC			
13.3	Please indicate whether or not you consider the following to be obstacles to participation in this village			
	Issues	Is this an obstacle? 1. Yes 2. No	If Yes, what is the degree of impact 1=Very serious 2=Somewhat serious 3=Not serious 4=Not applicable	
	Political conditions (e.g. political divisions among villagers)			
	Cultural matters (e.g. not allowing women to speak in front of men)			
	Poor leadership (e.g. leaders does not mobilize villagers to attend meetings)			
	Ignorance (e.g. not knowing importance of the meetings)			

14	END OF SURVEY	
14.1	Ending time:	
14.2	Additional information from respondent including questions/suggestions	
14.3	Is a respondent potential and willing for interview?	☐ 1. Yes ☐ 2. No
14.4	If Yes, his/her record phone number	

After completing the interview please remember to kindly thank the interviewee and bid him a warm farewell!

Appendix 4: Checklist for Village leaders (Village chairman, VEO, chairpersons of sub villages and members of village council) about their participation in the CBFM process

Section A: Information about village

1	Village name:		6	Ward:
2	Division:		7	District:
3	Constituency:		8	Year of registration:
4	Size of village:		9	Population:
5	Households:		10	Number of sub villages:
11	Names of sub villages:			
12	Farthest sub village from village centre and estimated distance:			
13	Tribes:			
14	Main tribe:			
15	Economic activities:			
16	Main economic activity:			
17	Food crops grown:			
18	Staple food:			
19	Cash crops grown:			
20	Main cash crop grown:			
21	Type of farming:			
22	Cropping calendar:	Activity	Period	
23	Livestock kept:			
24	Main livestock kept:			
25	Estimated number of charcoal makers:			
26	Estimated number of pit sawyers:			
27	Number of formal groups available			
28	Number of micro-credit groups:			
29	Number of farming groups			
30	Other groups:			
31	Number of pre-primary school:			
32	Number of primary school:			
33	Number of dispensaries:		38	Number of secondary school:
34	Number of water tapes:		39	Number of drilled water wells:
35	Number of water wells:		40	Year of LUP:
36	Facilitators of LUP:			
37	Land use categories:			

Section B: Social groups in the village based on wealth

1. What criteria used to rank people/household in the village?
2. How many social groups are available in the village based on wealth?
3. How many households fall in each social groups based on criteria identified in question 1?
4. How many households per sub village fall in each social groups based on criteria identified in question 1?
5. What households falling in each category per sub village?

Section C: CBFM Process to establish VLFR

1. When CBFM process started in the village?
2. How CBFM began?
3. How many meetings have been convened in establishment of CBFM?
4. At what time meetings started and ended?
5. Who allowed to attend the meetings?
6. How many people attended in each meeting?
7. What are legal requirement for village meetings to take off?
8. At what level these conditions adhered in the CBFM meetings?
9. What is the punishment for villagers who not attend in the meetings?
10. How people informed about the meetings?
11. What issues presented and discussed in the meetings?
12. Were people aware of the meetings' agenda before?
13. Who was the key speaker in each meeting?
14. How do people reached consensus about agenda presented and discussed in the meeting?

15. What were main criteria for a person to be elected as member of any forest committee?
16. How do members of various forest committee elected to ensure representation of each social group?
17. Do you have minutes of the meetings (including a list of attendance)?
18. How many copies of FMPs do you have?
19. Are forest by laws and harvesting plans pinned on the notice board?
20. Before MCDI introduced CBFM in the village, the village government had any plan about it?
21. What did you do?
22. If NO, why MCDI initiative to introduce CBFM was easily accepted?

**Appendix 5: Checklist for VNRC and PFRA team about their participation in the
CBFM process**

Members of VNRC

1. How many members are in VNRC?
2. How do you elected?
3. What is distribution of members of VNRC based on sex, age group, ethnicity, location (sub village), education level, and wealth?
4. Why VNRC is dominated by a certain age group?
5. What is organization structure of VNRC?
6. What are roles and responsibilities of VNRC?
7. How do VNRC work with village government (i.e. village assembly) and village council?
8. What motivated you to be a member of VNRC?
9. Would you like to contest for the next election of VNRC?
10. If YES/NO, why?
11. Did you participated in preparation of FMP?
12. If NO, why?

Members of PFRA team

1. How many members the PFRA team had?
2. How were they elected?
3. What motivated you to be a member of PFRA team?
4. What was distribution of members of PFRA team based on sex, age group, ethnicity, location (sub village), education level, and wealth?
5. What skills and knowledge you held about use and management forest?
6. What values/beliefs you held about the use and management of the forest?

7. Was the process of developing FMP provided a chance to apply your skills and knowledge?
8. Was the process of developing FMP allowed inclusion of values and beliefs?
9. What were the roles and responsibilities of PFRA team in developing forest management and harvesting plan?
10. How do VNRC, Village council and villagers participated in developing forest management and harvesting plan?
11. How many days did you spend to get training about participatory forest inventory?
12. Was the time allocated for training sufficient?
13. Were procedures of assessing forest resources understandable?
14. Can you and other members of PFRA repeat the exercise by yourself?
15. Did you participated in yield calculations?
16. Did you participated in drafting of bylaws and management plan?
17. Do you think wishes of villagers were included in the FMP?

Appendix 6: Checklist for VNRC members, and harvesting supervisors on implementation of the forest management plan

Section A: Controlling of forest fires

1. Who is responsible to control forest fires in the VLFR?
2. What are historical events related to forest fires?
3. What are main sources of forest fire in the VLFR? (Matrix ranking of forest fires causes)
4. Which are forest fires months?
5. Which are peak months of forest fires?
6. What are different traditional ideologies with regards to forest fires?
7. In which part of the forest where fires normally start?
8. According to your experience, what are main effects of forest fires?
9. According to your experience, what are positive effect of forest fires?
10. What plant or animal species mostly affected by forest fires?
11. Who is (Person/institution) responsible to take action in case of fire occurrence?
12. What factors triggering forest fire incidences?
13. How many people have been arrested for causing forest fires?
14. How many people arrested for harvest honey in the forest using fires?
15. Was there any forest fires campaign (emphasis on forest policy, forest act on forest fire management) held in this village?
16. If yes, when and who organized it?
17. How many times the VNRC has convened the village meeting to create awareness about forest fires or present an agenda in the village assembly to educate people about fires?

18. Are there any awareness creation materials about forest fires distributed to community members (Distribution of extension materials e.g. posters, seminars, brochures etc)?
19. How do villagers participate in forest fires management?
20. Is there fire patrol team in this village?
21. Are neighboring villages are aware about restriction of starting forest fires in the VLFR?
22. If YES, how are they informed?
23. Do you think controlling forest fires are important in the VLFR?
24. If YES, how?

Section B: Harvesting of forest products

1. What is relationship between Harvesting supervision Committee (HSC) and VNRC as well as Village Council?
2. To whom do HSC accountable for and submit your reports?
3. How did HSC members become a member of the harvesting committee?
4. What did HSC members taught in the training? May I see your lecture note books
5. How many days did HSC members spend in classroom?
6. How long did HSC members spend to get prepared before sitting for final examination?
7. How many questions were in examination paper?
8. How many marks did each HSC member score?
9. At the end of training, did HSC members awarded certificate? If YES, may I see it
10. What are main functions of the HSC?
11. In the first harvesting, who from either district or MCDI did HSC members work with?

12. What was division of labour between HSC members and expert from MCDI?
13. What were technical challenges HSC members faced in the first harvesting?
14. How did HSC members resolve those challenges?
15. Who paid allowance of expert from MCDI?
16. What did HSC members experience for the first 5 days of harvesting exercise?
17. There was issue that a buyer requested to be compensated some felled trees, what was it all about and why happened?
18. How many trees were wrongly felled and how many were compensated?
19. A buyer claim to owe the village a certain amount of trees/volume: Is this true and if YES, how was it happened?
20. At what time during harvesting do HSC members calculate log volume and transform them into tree volume?
21. How and when did HSC members communicate with a buyer on remaining volume to be harvested?
22. What mistakes did HSC members do in the first harvesting?
23. Did the buyer managed to harvest the amount he paid for?
24. Who supervised forest harvesting in the second phase?
25. What tree species requested to be harvested? **May I see application latter**
26. Why volume harvested in second phase exceed requested volume?
27. How do you know the excess of harvested volume?
28. When did you submit log sheets to MCDI?
29. What was the opinion of the villagers when the report on excess volume reached the village?
30. What difficulties you are facing with in your position as tree harvesting expert?
31. Do you think training you received was sufficient to start harvesting supervision?
32. If No why? May I see forms you have filled during the second harvesting

33. Are you confident now that you can do calculation correctly and therefore supervise another harvesting?