

**POWER STRUGGLES IN SULEDO VILLAGE LAND FOREST  
RESERVE, KITETO DISTRICT, TANZANIA**

**BY**

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE  
REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN  
FORESTRY OF THE SOKOINE UNIVERSITY OF AGRICULTURE.  
MOROGORO, TANZANIA.**

**2011**

## **ABSTRACT**

SULEDO Village Land Forest Reserve is important in supporting livelihoods of the adjacent local communities as well as for the economic development of the country at large. However, there is inadequate information on power struggles underlying the management and utilization of SULEDO VLFR. This study intended to assess power struggles underlying resource use conflicts in SULEDO VLFR. The study was conducted in three villages namely Sunya, Lengatei and Laiseru. Qualitative and quantitative data were collected. Content analysis technique was used to analyze qualitative data while descriptive and inferential statistical analyses were used to analyze quantitative data. Moreover, SNA was used in the analysis of power relations. A total of 25 stakeholders involved in the management and utilization of SULEDO VLFR were identified along with their roles. Stakeholders identified were categorized into three groups namely regulators, facilitators and users. Likewise three categories of power were identified namely strategic, institutional and structural. Strategic power was found to be dominant in the management and utilization of SULEDO VLFR. The results showed different power struggles among stakeholders whereby power struggle between ZEC and SULEDO villages was found to be dominant which resulted into resource use conflicts in SULEDO VLFR. Socio-economic and institutional factors found to significantly ( $P < 0.05$ ) escalating dominant power struggle between ZEC and SULEDO villages were wealth status, immigration, distance from homesteads to resource base, membership in VEC and political involvement while Education level, age, residence duration, farm size and household size were significantly ( $P < 0.05$ ) reducing the power struggle. Main forest resource- use conflict in SULEDO VLFR is with regards to disagreements which

have resulted into unsustainable forest management. CBFM scheme in SULEDO VLFR remains a complex and contested arena, comprising many stakeholders with different powers and conflicting interests. It is recommended that communication among stakeholders in the study area should be improved.

**DECLARATION**

I, Kajenje Magessa do hereby declare to the Senate of the Sokoine University of Agriculture that the work presented here is my own original work, and has not been submitted nor is concurrently being submitted for a higher degree at any other University.

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## ACKNOWLEDGEMENT

In pursuit of this work, a number of people were of great assistance in different capacities, without their support it would have been extremely impossible to accomplish this work. Since it is difficult to mention each one by name, I wish to express my sincere gratitude to all who contributed towards its success. First and foremost, I would like to thank God for keeping me alive and enabling me to complete this work successfully. I am deeply indebted to my supervisors Prof. G.C. Kajembe and Dr. G. E Mbeyale both from the Department of Forest Mensuration and Management for their intellectual stimulation, professional guidance, critical comments, encouragement and sincere interest in this study from formulation to completion. I owe special thanks to Prof G.C. Kajembe for inspiring me to study power struggles in the management and utilization of forest resources. His devotion for this work, support and encouragement were a special motivation.

I wish to extend grateful acknowledgement to Prof Y.M Ngaga and all other members of academic staff in the Faculty of Forestry and Nature Conservation, Sokoine University of Agriculture who were a source of encouragements during the write up. I acknowledge the financial support from NUFU –Assessing the Impact of forestland tenure changes on forest resources and rural livelihoods in Tanzania Project, without which my studies at Sokoine University of Agriculture could have been impossible. I owe special thanks to ORGUT particularly Mr Minja, Kiteto District Natural Resources Office, Village government leaders and communities in Sunya, Laiseru and Lengatei villages for their support during data collection. A special mention is due to

Non governmental and governmental agents who devoted their time to respond to continuous interviews and allowed me to pry into their privacy. Their cooperation shall always be remembered.

I am also very grateful to my father Rukondo Magessa and my mother Elizabeth Elias for their care and encouragements throughout my studies. My special thanks should go to my beloved husband Edwin M. Igenge for his patience, love, encouragement and prayers throughout the study period. My sisters, brothers and friends for their moral support.

## **DEDICATION**

This work is dedicated to my father Rukondo Magessa, my mother Elizabeth Elias who sacrificed for my education. It is also dedicated to my husband Edwin Mark Igenge whose moral support and prayers for during studies have contributed to the success.



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**LIST OF ABBREVIATIONS AND SYMBOLS**

ARFP	Arusha Regional Forestry Programme
AWF	African Wildlife Foundation
CBFM	Community Based Forest Management
CBOs	Community Based Organisations
CORDS	Community Research and Development Services

DFO	District Forest Officer
DNRO	District Natural Resources Officer
FBD	Forest and Bekeeping Division
JFM	Joint Forest Management
FTI	Forest Training Institute
KINNAPA	Kimana Njolo Ndaleta Nameloku Pastimbo
LAMP	Land Management Programme
L&HR	Legal and Human Rights
MGR	Mkomazi Game Reserve
MM	<i>Mama Misitu</i>
MRNRO	Manyara Regional Natural Resources Office
NGOs	Non Governmental Organisations
NTFPs	Non Timber Forest Products
PFM	Participatory Forest Management
PRA	Participatory Rural Appraisal
SIDA	Sweedish International Development Agency
SNA	Social Network Analysis
SPSS	Statistical Package for Social Sciences
SUA	Sokoine University of Agriculture
SULEDO	Sunya Lengatei Dongo
SWEAT	Sunya Ward Education and Training
TAFORI	Tanzanian Forestry Research Institute
TATeDO	Tanzania Traditional Energy Development Organization
TFCG	Tanzania Forest Conservation Group
UDSM	University of Dar es Salaam
USD	United States Dollar
UWAMASU	Umoja wa Mazingira SULEDO
VEC	Village Environmental Committee
VGs	Village Goverments
VLFR	Village Land Forest Reserve
WEO	Ward Executive Officer
WMA	Wildlife Management Area
ZEC	Zonal Environmental Committee



## **CHAPTER ONE**

### **1.0 INTRODUCTION**

#### **1.1 Background**

##### **1.1.1 Overview on Forest Resources Management in Tanzania**

Of the estimated 33 million hectares of forest land in Tanzania, 57% (around 19 million hectares) is mostly unprotected and occurs outside the government forest reserves (URT, 2002a). In 1990s there has been reforms in forest management practices whereby a number of pilot Participatory Forest Management (PFM) initiatives were started in Babati, Manyara Region and Mgori, Singida Region. These initiatives and others across the country acted as a background in the review of the forest policy in 1998 and legislation in 2002, which contributed to a favorable legal environment for PFM (Blomley and Ramadhani, 2006).

Community involvement in forest management in Tanzania entails two pillars namely Joint Forest Management (JFM) and Community Based Forest Management (CBFM). In JFM, the government is the owner of the forests but shares duties and benefits with local communities, while in CBFM local communities are both owners and duty bearers (that is, owners, users and managers) (Wily, 1997). The National Forest Policy of 1998 clearly recognizes this and provides incentives for forest management under Community Based Forest Management (CBFM) at the lowest level of local government through villages which number over 11 000 in the country. Notable examples of CBFM include the East Usambara forests in Tanga region, mountane forests in Iringa region as well as Miombo woodlands, and coastal forests in Tanga, Mtwara and Lindi

regions (Wily, 1997). Tanzania mainland has one of the most advanced community forest jurisdiction in Africa as reflected by the policy, law and practice (Wily, 2000).

Currently, Community Based Forest Management has been initiated in a number of unreserved village lands and are at different stages of development. These CBFM initiatives include among others, Duru-Haitemba in Babati District and SULEDO in Kiteto District. SULEDO is the acronym for 3 wards namely Sunya, Lengatei and Dongo and Mgori in Singida Region (Wily and Mbaya 2001, Blomley and Ramadhani, 2006). These pilots, implemented by a range of actors including local and international NGOs, local governments and supported by bilateral donors, collectively demonstrated the viability of CBFM under a range of social and ecological conditions (Wily, 1997).

### **1.1.2 Management and Utilization of SULEDO Village Land Forest Reserve**

SULEDO Village Land Forest Reserve (VLFR) was initiated in 1993, as a project which was under the Arusha Regional Forestry Programme (ARFP) supported by Sweedish International Development Agency (SIDA). The project looked at different ways of managing forest areas jointly with local government authorities in a number of districts of Arusha Region. In 1994, SULEDO was formally established as a CBFM site through official transfer of administrative authority to the community (Blomley and Ramadhani, 2006). The change in tenure of SULEDO VLFR also resulted in changes in power relations at the local level, making a major impact on the institutions that determines people's access and control of the forest resources (Shackleton *et al.*, 2002).

There is a number of stakeholders in SULEDO VLFR with different powers and have now started to utilize the forest (natural capital) after many years of managing it. The situation has created a room for power struggles in the reserve which tend to lead into conflicts. The conflicts are both real and potential. Power struggles have been defined as an open clash between two opposing groups or individuals (Lukes, 2005). Power struggles can be manifested between different traditional authorities, political leaders and elected representatives who can disrupt community-based processes (Barrow *et al.*, 2002). Kajembe and Monela (2000) in a study carried out in Duru-Haitemba reported power struggles between the “elites” and the “traditionalists” at the local level.

The most probable common cause for power struggles between stakeholders is unequal distribution of resources (Markovsky, 1993; Platteau and Gaspart, 2005). Power struggles, linked to intra- and inter- community issues, relate to the manner in which rural people interact within a village or community, and how such communities interact with each other in the management of forest resources. During the interaction of stakeholders, various types of power affect each other, and the outcome is not simply the most powerful acting upon the least powerful but rather an outcome where each type of power has contributed to ultimate outcome such as conflicts. These interactions influences the way communities are involved in the management and utilization of forest resources (Mbeyale, 2009). However, if these interactions are characterized by competing interests and power imbalance among resource users, they consequently lead to power struggles among stakeholders which may lead to unsustainable utilization of the forest resources (Beeler, 2005).

Power struggles in most cases are perpetuated by prevailing institutions and ideologies and can raise groups with more bargaining power than others. Bargaining power is defined by Ensminger (1992), as one's ability to get what one wants from others. It can come from greater wealthy, social or political status, and the ability to manipulate the ideology of others. Nuijten (2005) stated three categories of power which are embedded in people's livelihood as strategic, institutional and structural. In some cases, the three categories of power are closely linked and cannot be easily separated from each other. Participatory approaches, which aim at devolving power to lower levels, always include an alteration of power relations and benefit sharing mechanisms. Therefore, participation and power are closely linked in the management of forest resources (Barrow, 2002).

SULEDO VLFR has been hailed as an ideal development project. In 2002, the nine villages surrounding SULEDO VLFR won the Equator Prize for the best development practice, implying that this is a successful case of CBFM, which links and achieves the dual objectives of livelihood improvement and arresting forest degradation.

## **1.2 Problem Statement and Study Justification**

### **1.2.1 Problem Statement**

In Tanzania, about 2 060 608 hectares of forestland are under CBFM arrangement and SULEDO VLFR covers 8% of the area. However, most of the forests under CBFM are established on degraded forestlands, and the local communities are trying to recreate natural capital. The situation is different in SULEDO Village Land Forest Reserve

whereby the natural capital is already in place. SULEDO VLFR is rich in valuable species including African blackwood (*Dalbergia melanoxylon*). The value of *D. melanoxylon* includes *provision* of fuel with high calorific value of about 49 000 kcal/kg. *D. melanoxylon* also provide timber with sapwood which is white or yellowish-white, often 12 cm wide and sharply differentiated. The heartwood of *D. melanoxylon* is purplish black, sometimes darker towards the outside, with light streaks and not always uniform in colour. The timber is slightly oily and exceptionally hard. The heartwood is extremely durable and resistant to all forms of biological deterioration and is the most expensive hardwood in the world, fetching up to 25 000 dollars per cubic metre in the export market (Gathanju, 2009).

High resource potential in SULEDO VLFR has attracted different groups of stakeholders with varied and conflicting interests which further create management challenges including power struggles opening room for forest resource use conflicts. Each stakeholder with different power is competing to have a stake on the utilization and management of the forest resources. Finding a way to balance the power so as to ensure equity in terms of sharing benefits, requires among other things in- depth analysis of key stakeholders and factors governing the entire process. Chapin (2004) and Benjaminsen *et al.* (2008) documented the discrepancy which exists between the rhetoric of CBFM and problems that persist on the ground.

Despite the fact that SULEDO VLFR is important in supporting livelihoods of the adjacent local communities as well as economic development of the country at large,

still there is inadequate information on power struggles underlying the management of SULEDO VLFR. Moreover, forest resource use conflicts, as a result of power struggles in SULEDO VLFR are also scantily documented. Understanding these power issues at a community level is key for the achievement of more equitable distribution of forest resource benefits and costs among the stakeholders.

### **1.2.2 Study Justification**

This study is important because, it is carried out at the time when SULEDO communities have started to utilize the natural capital after conserving it for quite some time, hence a lot of power struggles have emerged among different stakeholders. In any one place, the relative rights of access to forest resources by various stakeholders, their relative roles and responsibilities are not static (Barrow, 2002). This is because different stakeholders within a community may have different interests in the same resource. For instance women valuing a certain tree species for its firewood potential and fruits to the households, whilst men may see the same tree as a potential cash earner for themselves from the sale of poles. Understanding differences in stakeholders interests and the ways in which different groups are able to compete to control forest resources is important in order to develop strategies for sustainable and equitable community involvement in forest management. This is particularly so when a forest resource has a commercial value.

The findings of the study will contribute to the process of mitigating the problem of power struggles which seem to emerge among stakeholders in different parts of the country. Therefore, the findings of this study will contribute to policy formulation for

ensuring sustainable forest resources management in the study area and CBFM programme in Tanzania at large.

### **1.3 Objectives**

#### **1.3.1 Overall Objective**

The overall objective of this study is to assess power struggles underlying resource use conflicts in the management and utilization of SULEDO VLFR.

#### **1.3.2 Specific Objectives**

- i. To identify main stakeholders, their roles and interactions in the management of SULEDO VLFR.
- ii. To identify and assess types of power and power struggles underlying forest utilization and management in SULEDO VLFR.
- iii. To identify socio- economic and institutional factors underlying dominant power struggle.
- iv. To assess forest use conflicts as a result of power struggles.

### **1.4 Research Questions**

- i. Who are the stakeholders in SULEDO VLFR?
- ii. What are their roles in the management of SULEDO VLFR?
- iii. What are their interactions in management of SULEDO VLFR?
- iv. What types of power underlying forest management in SULEDO VLFR?
- v. Which power is dominant in SULEDO VLFR?
- vi. What are power struggles existing in SULEDO VLFR?

- vii. Which power struggle is dominant in SULEDO VLFR?
- viii. What are the socio economic factors underlying the dominant power struggle?
- ix. What are the institutional factors underlying the dominant power struggle?
- x. What are resource use conflicts arising as a result of power struggles?

### **1.5 Conceptual Framework**

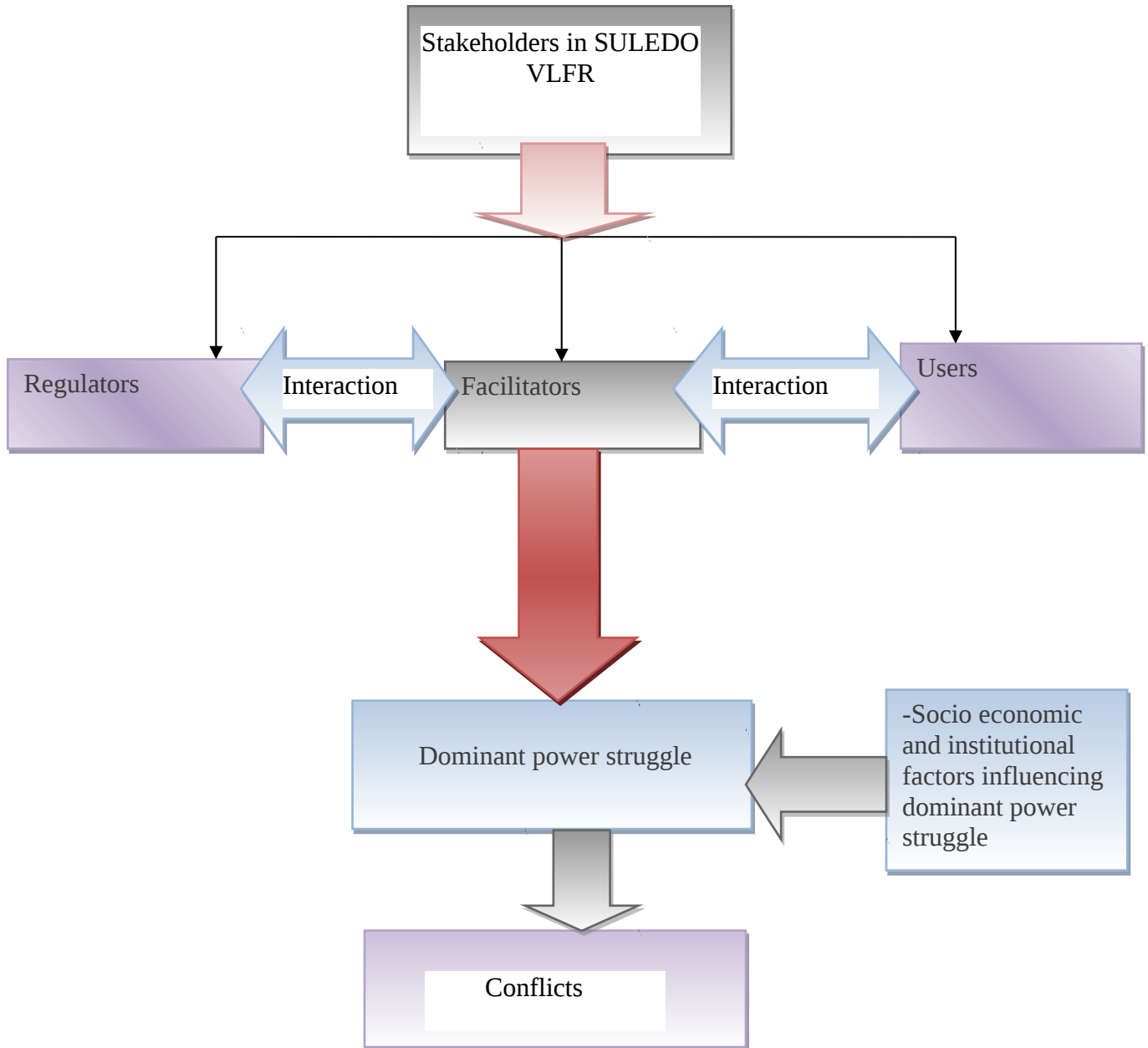
The conceptual framework underlying this study (Fig. 1) is centered on stakeholders in SULEDO VLFR, including regulators, facilitators and users, who have stakes on the management and utilization of SULEDO VLFR, hence creating power struggles among themselves. On the other hand there are institutional and socio-economic factors that influence the dominant power struggle. The factors include cultural, religious diversity, policy, economic activities, ethnicity, and population dynamics. Desloges and Gauthier (1996) stated that population dynamics, for example, have many influences on power struggles which lead to forest resource use conflicts. It is hypothesized that power imbalance resulting from inappropriate institutional arrangements, lead to forest resource use conflicts.

### **1.5 Study Limitations**

The research encountered some situations that are considered to be the limitations including the language barrier. In most parts of Tanzania people fluently communicate in Swahili, but in the study area the language barrier was rather pronounced particularly in Laiserri village. Some respondents could communicate fluently in Maasai and Kamba and less in Swahili. In order to overcome the limitation an interpreter was hired for this case; thus limiting the researcher to get first hand information. Another limitation was



difficulties in gathering quantitative data such as households' income. To overcome the limitation, the researcher had to probe for more details and make comparison with current household expenditure to arrive at meaningful estimates.



**Figure 1: Conceptual framework underlying the study**

## **CHAPTER TWO**

### **2.0 LITERATURE REVIEW**

#### **2.1 Evolution of Forest Resource Management in Africa**

African countries have worked out the problems of allocation and access to forest resources, which necessitated creation of institutions to facilitate day to day functioning of resource management regimes and helped communities to reduce the transaction costs of defending or managing the commons (Mbeyale, 2009).

During the colonial period, the natural resource policies formulated contradicted and actually were calculated to weaken or eliminate African institutionalized local resource management regimes (Kajembe and Monela, 2000). Unfortunately after political independence, most governments in Africa embraced and sustained colonial conservation policies. Due to poor outcomes associated with government-centred policies, many conservation policies in Africa failed because traditional local authorities that once controlled these resources were disenfranchised (Agrawal and Clark, 2001).

Local people's cultural and socio-economic values regarding forest resources around them were ignored in most state-centred management regimes. According to Agrawal and Clark (2001), if local communities were effectively involved in the conservation, the

benefits they received created incentives for them to become good stewards of forest resources. On the other hand, where communities were not involved in active management of forest resources, they harvested the forest resources at an unsustainable rate. This situation resulted into further weakening of the local institutions for managing forest resources. Policy changes at macro and micro levels are attributed to the government failure to control access to forest resources largely due to inadequate manpower to take care of forest resources, in terms of patrolling and implementation of management plans and limited financial capacity (Kihyo, 1998; Ostrom, 1999).

Governments in more than 50 countries, claim initiatives that devolve some control over resources to local users. Community Based Natural Management is being promoted in several African countries (FAO, 1999). Under this paradigm shift, Community Based Natural Resource Management is advocated and has been reflected in the policies of several African countries. Examples include Zimbabwe Communal Area Management Programme for Indigenous Resources; Community Based Forest Management in Tanzania and Community Based Property Rights in Niger, Mali, Namibia and Mozambique (Benjaminsen *et al.*, 2002).

In this regard, effective decentralization of power and control over resources from centralised state to local communities has become a pressing policy issue all over Africa (Brown, 1999). However, governments in Africa have a long way to go in implementing the policies due to a plethora of technical, financial, and political

challenges affecting them especially under the environment where market dominate (URT, 2000). Despite of these trends of promoting local community involvement, little real transfer of power has taken place. Tanzania in this respect shows a greater commitment of empowering local institutions in the process of decentralisation than many countries (Barrow *et al.*, 2002). Decentralization is defined as the formal transfer of power from the central government to actors or institutions at lower levels in an administrative and territorial hierarchy. It is democratization processes and endeavors to transfer powers closer to those who are affected by the exercise of these powers (Larson, 2004).

## **2.2 Evolution of Forest Resource Management in Tanzania**

Tanzania is endowed with vast natural resources that have sustained the livelihoods of the local communities for many decades. These resources including land, forests, water, wildlife and pastures, are offering a range of products and services to local communities (Mbeyale, 2009). Forest resources have been progressively under constant pressure overtime, which is due to several internal and external forces. The forces include political, demographic, socio- economic, market, policy changes, and technological development (Ostrom, 1999).

After independence, many forestlands in Tanzania were managed centrally (URT, 1998). However a sense of responsibility and ownership of forest resources among the local communities continued to deteriorate as the government continued to have central power on the forest resources (Bagachwa and Limbu, 1995). The main setback in the management of forest resources was lack of manpower to take care of the forest

resources in terms of patrolling and implementation of management plans, inadequate financial resources for running different operations leading into mismanagement and hence open access situation and hence degradation (Mbeyale, 2009).

After the inception of the National Forest Policy in 1998 (URT, 1998), Tanzania experienced a number of institutional reforms. Most of these reforms were geared towards devolving forest resources management from the state to lower levels (Wily and Mbaya, 2001). More specifically, these reforms underlined the need for community participation and empowerment in the management of forest resources in order to achieve sustainable development (Mniwasa and Shauri 2001).

Due to the failure of the government to manage forest resources, decentralization and privatization policies were adopted in order to pave way for local people to participate in the management of forest resources (URT, 1998). Such policies do encourage communities to become more involved in decisions affecting their own livelihoods and the resources on which those livelihoods are based.

Institutional reforms in Tanzania tried to redress different forest management problems by promoting good governance through emphasizing a shift towards decentralization by devolution of government power to local government levels (Wily and Mbaya 2001; Larson, 2004). Making people living adjacent to forests the guardians of the forest resources in the neighbourhood appears to be the most viable, effective, cheaper and

long-lasting way to manage natural forest resources (Kajembe *et al.*, 2003). Under right conditions, such as appropriate legal framework and incentive structures, these people are likely to become the most effective managers and this should be far more cost-effective. The burden of policing by the government should then fall away and the foresters should become technical advisers not policemen. Such devolution of power is expected to have positive impacts on the management of forest resources at the local level. CBFM arrangement in Tanzania has been initiated in a number of unreserved forests which was on general land. Table 1 shows the current coverage of CBFM across mainland Tanzania.

**Table 1: Current coverage of CBFM in mainland Tanzania**

<b>Community Based Forest Management</b>	
Area of forest under CBFM	2.06 million (ha)
Number of declared or gazetted village land forest reserves	382
Number of villages engaged in CBFM	1102
Number of districts engaged in CBFM	51
% of public land forests now under CBFM	10.2

**Source: Adopted from Blomley and Ramadhani, (2007)**

### **2.3 Evolution of Forest Resource Management in SULEDO VLFR**

SULEDO VLFR represents one of the early cases of community-based forest management in Tanzania. In 1992, the central government intended to make the forest a National Forest Reserve. Different ethnic groups were using the forest to get different products and services including water, fruits, and firewood. When the forest was taken over by the government they could not access these products. The villagers themselves came up with the idea that they could communally manage the forest (LAMP, 2003). There was an enthusiasm for owning the forest. It was an outcry! a sense of ownership

was in their mind but they didn't know how to go about. The forest policy wasn't addressing the issue of community based forest management at that time.

In 1994, first ideas of ownership and community-based management surfaced in SULEDO in which the government assigned a consultant to conduct a socio-economic study in the area. Then there was a go ahead (Stefan, 2008). In 2001, SULEDO was established as a CBFM site through the formal transfer of administrative authority to the community. In 2002 SULEDO won the Equator Prize for best development practice (Sjöholm and Luono 2002). It is worth noting that the management plan of SULEDO VLFR during the first years was concerned solely with conservation of the forest. Therefore the community had little to gain financially from the forest with exception of the Equator Prize – valuing approximately USD 3 000 per village, which was invested in community development Projects, e.g. building classrooms or dispensaries – and the fines taken from people engaging in illegal activities in the forest (Mellenthien, 2005).

In late October 2008 new bylaws and management plan which was to include sustainable harvesting were officially approved by the Director of Forestry and Beekeeping. This means that the process of pilot harvesting started. Differences in opinions about issues of management and harvesting between different parties seemed to have been resolved. Finally, in December 2008, a team from the District Council, ORGUT and the Zonal Environmental Committee (ZEC) addressed the ten village councils and the village assemblies seeking their approval of the centrally approved forest bylaw (Model by-law) (Stefan, 2008). The commercial value found in SULEDO

VLFR has influenced the forest to attract different stakeholders including both international and national.

#### **2.4 Stakeholders and their roles in Forest Resource Management**

Grimble (1998) define stakeholders as persons, groups, institutions and organizations that have interest or are found to be active players in a system. Stakeholders in forest resources can be classified into resource users (those found using the resource for either subsistence or commercial), regulators (those found regulating resources utilization such as the central and Local Government officials) and facilitators, those found facilitating the communities in different ways mainly Non Governmental Organizations (NGOs) and Community Based Organizations (CBOs) (Mbeyale, 2009).

Stakeholders can be at any level or position in society including international actors (foreign governments; bilateral and multilateral aid agencies or agencies of international conventions and protocols); and national (Borrini-Feyerabend and Brown, 1997). Others are national NGOs; national and international private sector enterprises; District Councils; Wards and Village Assemblies; Traditional Authority Structures; Local Self-interest Organisations (including co-operatives and religious groupings and categories of local socio-economic status comprised of households or individuals differentiated by gender, economic status, education and age (Murphree and Mazambani, 2002).

None of these categories operate in isolation; indeed they interact. In the past, many conservation initiatives failed because they paid inadequate attention to the roles and



characteristics of stakeholders (Grimble and Wellard, 1997). Stakeholders are usually identified and categorized through a subjective assessment of their relative power, roles and legitimacy (Mitchell *et al.*, 1997).

#### **2.4.1 Types of Power in the Management of Forest Resources**

Lukes (2007) define power as the capacity to advance one's interests and affect the interests of others, whether negatively or positively. Power is not measurable in absolute terms and might differ in different spheres. Furthermore it evades direct measurement. Different approaches in "measuring" power empirically rely on indicators that reflect power of actors. According to Agarwal (1997), an indicator for power of different government departments could be the size of their budget in relation to the whole budget. Indicators for bargaining power within households could be the observable results: the things different household members have bargained for successfully. With reference to the analysis of power categories, Lemke (2003) identified three categories of power, including strategic, government or institutional and domination or structural power.

#### **2.4.2 Strategic Power**

Strategic power refers to a ubiquitous feature of human interaction, as it signifies structuring possible fields of action of others. This can take many forms, including ideological manipulation or rational argumentation, moral advice or economic exploitation. Power as strategic phenomenon can be perceived in numerous daily interactions between individuals and groups (Lemke, 2003).

### **2.4.3 Government or Institutional Power**

Government or institutional power refers to more or less systematized, regulated and reflected modes of power that go beyond the spontaneous exercise of power over others, following a specific form of reasoning. Institutional power can only be studied and analyzed in the context of institutions and the practices of organizations. Institutions should be able to deal with power within communities and guarantee accountability and transparency for them to gain legitimacy among the local people.

### **2.4.4 Domination or Structural Power**

Domination or structural power refers to power that is stable and hierarchical, unchanging and difficult to reverse. Domination refers to those asymmetrical relationships of power in which subordinated persons have little room to manoeuvre because their margin of liberty is extremely limited (Lemke, 2003).

Obviously, the three categories of power are closely linked and cannot be easily separated from each other. In the same way, individual power is always part of wider institutional and structural processes. For that reason, power relations can only be studied and analyzed in the context of institutions and the practices of organizations. Evolving institutions should be able to deal with power dynamics within communities and guarantee accountability and transparency for them to gain legitimacy among local people. Ultimately the challenge is to ensure that decentralized authority is more accountable and transparent than centralized authority. Claims of local community to forest resource utilization are positioned differently with respect to their economic

activities, acquisition and distribution of land, relative wealth, gender, education and position in politics (Lund, 2007).

Since there are different stakeholders involved in the utilization and management of forest resources with different interests, this tends to lead to power struggles. Different stakeholders tend to seek new alliances and strategies to exploit forest resources (Barrow *et al.*, 2002). Multi-stakeholder analysis is a general analytical framework for grouping differences in interests and power relations among stakeholders, with a view of identifying who is affected by whom and who can influence current patterns of forest resource management (Ramírez, 1999).

Social Network analysis (SNA) is useful tool in analyzing the interest and characteristics of stakeholders in the management of natural resources. This tool has gained increasing attention and is now an integral part to many participatory natural resource management initiatives (Mushove and Vogel, 2005).

#### **2.4.5 Social Network Analysis**

Social network analysis focuses on the structure of relationships, ranging from casual acquaintance to close bonds. Social network analysis assumes that relationships are important. It maps and measures formal and informal relationships to understand what facilitates or impedes the knowledge flows that bind interacting units, who knows whom, and who shares what information and knowledge with whom by what communication media (Bodin and Crona, 2006). Social Network Analysis comprise of stakeholders who are tied to one another through socially meaningful relations. These

relations can then be analysed for structural patterns that emerge among the stakeholders. Thus, an analyst of social networks look beyond attributes of individuals to also examine the relations among stakeholders, how stakeholders are positioned within a network, and how relations are structured into overall network patterns (Wasserman and Faust, 1994). Wellman and Gulia (1999) sees closeness (distance to all other actors in the network) and betweenness (degree to which an actor links to others who are not otherwise linked) as crucial in determining the power of different stakeholders. When stakeholders come to recognize for themselves the common interests and strategic differences that connect them to each other, new opportunities can appear for turning conflict into collaboration (Buckles and Rusnak, 1995). Understanding power struggles or competing interests and interest groups within a community is complex and difficult, and influenced by many factors including socio-economic and institutional (Barrow *et al.*, 2002). However, the interests and interest groups are determined by the nature and value of the forest resources and people's dependency on them.

### **2.5 Socio-economic Factors Influencing Power Struggles**

Stakeholders' interactions under different socio economic situations, institutional settings and power relations are one of the most important aspects that influence forest resource use conflicts (Mbeyale, 2009). Socio-economic status of communities closest to wildlife protected area has been reported to be one of the underlying reasons for power struggles which resulted into resource use conflicts in Tanzania (Shemwetta and Kideghesho, 2000). A list of other factors

that contribute to emergence of power struggles at the local level has been documented by Desloges and Gauthier, (1996) who reported that particular constellation of these factors often has a determining influence on the nature of power struggles and consequently conflicts that arise, who is involved, who manages them and how they can be managed. These include cultural, ethnic and religious diversity, policy, legal and economic factors. Borrini-Feyerabend, (1997) noted that, population dynamics affect the degree and rate of use of natural resources, thus presence or absence of available natural resources is a determinant of local population size and density, and of movement of people into and out of a territory.

Power struggles may arise from immigrations, where user groups with different interests and attaching different values to the resources share the same ecological range. Population increase has rendered some rural families to have less land to cultivate hence less food (Kingazi, 2002). However, the emphasis of population as a major factor in forest resource management occurs at the expense of the recognition of more controllable socio-economic factors (Kajembe, 1994). Borrini-Feyerabend (1997) reported migration to be one of the main contributing factors to population dynamics and subsequently to power struggles. This is because people always move from place to place. For example, the nomads and pastoralists usually move with their herds in search for better pasture land. This may lead to increased demand for these resources in the receiving ends. Several factors influence the extent to which a household depends on a

forest resource, including: distance from residence to forest reserve, infrastructure, wealth, household size, and level of education of members of the households. Some research findings have shown that poor households depend totally on forest products due to limited access to alternative sources of income, while wealthy households mainly use the forest for larger commercial activities (Wass, 1995).

Success or failure of governance structures are always influenced by socio- economic factors which include household income, household size, market price of the forest products, distance from residence to forest reserve, farm size, age, sex, marital status and level of education of the local people (Pradhan, 2006).

## **2.6 Institutional Factors Influencing Power Struggles**

Institutions are rules and structures that humans impose on human interactions that make and shape the performance of the societies in the management of natural resources. They provide sets of rules governing relationships both among its members and between members and non members. Mbwilo (2002) noted that norms and codes of conduct are institutions as far as they can constrain the relationship between different individuals and/ or groups. North (1990) gives an explanation that formal rules are those regulating the structures of polity, property rights and contracts, while informal ones refer to norms of behaviour or customary rules. Bandaragoda (2000) give a similar explanation that institutions can be both formal and informal, apart from written rules and informally established procedures, norms, practices and patterns of behaviour form party of the institutional framework.

Acheson (1994) points out that, institutions are substitute for accurate information. In uncertain world they provide a way for making decisions with reasonable assurance because rules help to predict behaviour pattern of others (North, 1990). The high dependence of local people on natural resources for their livelihoods has influenced designing of appropriate rules, regulations and practices for natural resource use (Heywood, 1992). These rules are what we call institutions. They are used to govern human activities and shaping peoples' behaviour. They usually direct what people should do, how things should be done, when such practices should be done and specifying who should be responsible for what. There is therefore a close relationship between local institutions and daily activities of the members of the society. However, if the institutions are not analyzed properly, the real managers may loose their institutional power to either government administrative structures or to outsiders. Many of these institutional arrangements survive, not by statutory decree, but by the ability of their proponents to maintain and negotiate for such rules, norms and procedures with other community members and outsiders. Kajembe *at al.*, (2004) argued that these institutions share a set of characteristics including a system of rules, decision-making procedures that give rise to social guidance of interactions among the role players.

Scholars and practitioners of institutional analysis assert the supremacy of local level institutions in natural resource management (Ostrom, 1998; Gibson and Becker, 2000). Institutions are designed to have both policy and legislation authority and enforcement structures that govern and underpin various responsibilities and rights to the stakeholders (IUCN, 2000). The rules and regulations, and the norms and procedures for community based forest management govern access, establish the mechanisms for

responsible use, and enable communities to have the power to include or exclude. Many of those institutional arrangements are often "hidden" and "unheard", yet are vital for community cohesion, social responsibility and forest resource management (Barrow *et al.*, 2002). Cultural institutions have an advantage over political institutions since they are more realistic in addressing the prevailing factors influencing power struggles (Kihyo and Kajembe, 2000). In many situations, institutional mix is suggested as a good approach of managing power struggles, this means that, both customary/informal and formal institutions are essential (Ross, 1995). The relationships between forest resources and people are mediated through institutions. Institutional arrangements shape resource access and control, and are fundamental to understanding patterns of stakeholder interests (Barrow, 2002). In all these institutional arrangements at the community level, power is key because understanding power and decision making dynamics at a community level is crucial for understanding institutional complexities. However, lack of recognition of local institutions in forest resources management and utilization has in many cases led to power struggles in many places (Gibson and Becker, 2000).

## **2.7 Resource Use Conflicts**

According to Lewis (1997) the term conflict refers to any situation in which there is a clash of interests or ideas. Usually, the interests and needs are incompatible amongst users, and sometimes these interests and needs are not properly addressed in natural resource policies and/or programmes (FAO, 2000). Resource use conflicts manifest themselves as political, social, economic, ethnic, religious or territorial, or conflict over resource or national interests (Homer-Dixon, 1998). Natural resource management is



inherently a political process and is susceptible to conflict, because of interconnectedness and interdependence of ecosystem and social systems, a complex unequal relation among social actors where power imbalance exists, increasing resource scarcity, heterogeneous goals and beliefs about action and their consequences (Robbin, 1994). In general, resource use conflicts are known as the eventual outcome of institutional breakdown, complex unequal relations among social actors, where power imbalance exists (Mbeyale, 2009). Understanding conflicts within forest resources management increases the sociological body of knowledge on how conflicts are generated, types and levels of conflicts.

In order to understand conflicts from sociological point of view, it is necessary to revisit the conflict theory. The conflict theory has its roots in the works of Heraclitus, Polybius, Thomas, Hobbes, David Hume, George Simmel, Karl Marx and Ralf Dahrendorf *inter alia* (Mvena *et al.*, 2000). Conflict theorists have argued that societies are in constant state of change, in which conflict is a permanent feature, and viewed conflicts as a pervasive and inevitable feature of social systems (Mvena *et al.*, 2000). The variation between theorists on conflict is symptom of the division between macro and the micro levels of analysis and explanations. All these theories have their strengths and weaknesses (Kisoza *et al.*, 2004).

However, the conflict behaviour needs to take into account the social structural factors, on one hand, and behavioural and attitudinal on the other. Social conditions do have a significant impact on people, but it is the perception of individuals which makes them

see certain social conditions as undesirable or as being the underlying cause of their problems (CWS, 1998).

### **2.7.1 Types of Resource Use Conflicts**

Wanner (2000) categorized different types of conflicts that are manifested in different resource use circumstances and outlines them depending on the type of stakeholders or actors involved and the levels of which conflicts are manifested. These can be among community groups (resource users), or between community groups (users) and outside government (regulators), private or civil society organizations/NGOs (facilitators).

Mbeyale (2009) identified conflicts common in forest resource management including intra-micro-micro conflicts which are conflicts occurring among individuals within a community, households or among relatives. These conflicts result mainly due to resource scarcity and inequitable distribution of the resource due to power imbalances, breakdown of rules and agreements (institutions) in resource utilization, disputes over resource boundaries between individuals or groups and disputes over land and rights to resources. Inter-micro – micro conflicts which are conflicts that emerge at community level between resource users due to scarcity or rising demand of particular resource or between sedentary resource users and seasonal ones. The conflicts can result mainly due to disputes resulting from growing wealth disparities and lack of cooperation between different community groups. Micro-macro conflicts are conflicts resulting from forest resource needs and values between authorities and local communities, conflicts over project management between community groups and outside sponsors and conflicts caused by political influence at a national, district or local levels.

Kisoza (2006) identified resource use conflicts which include firstly inter-village conflicts and secondary intra-ethnic group resource - use conflicts. Inter-village conflicts involve boundary disputes between pastoralists and the neighbouring farmers. The pastoralists have formal group titles to their village lands, while farmers have customary claims to their communal village lands which appear to overlap with lands allocated to the pastoralists (Kisoza, 2006). Kajembe and Mwihomeka (2001) on the other hand identified inter-generational resource-use conflicts in Handeni district, Tanga region. In general, understanding the nature of conflicts may vary among various stakeholders and this depends upon interests, motivations, knowledge and resources (Ramirez, 1995). Conflicts often share similar patterns and stages of development. However, they do not always progress in a strictly linear fashion. Instead, conflicts sometimes unfold in non linear ways (Moore, 1996). FAO (2000) identified latent conflicts which refer to social tensions, differences and disagreements that are hidden or undeveloped. Conflicts remain latent because of fear, distrust, peer pressure or financial reasons. Conflicts can emerge gradually and steadily or develop rapidly in response to same significant events. As differences increase the intensity of conflicts become manifest. Manifested conflicts can escalate and become violent.

### **2.7.2 Causes of Resource Use Conflicts**

Forest resource use conflicts usually have multiple causes and a pluralistic approach that recognizes the multiple perspectives of the stakeholders, the concurrent effects of diverse causes in forest resource use conflicts is essential for understanding the initial situation and in identifying strategies for promoting change (Buckles and Rusnak,

1995). Causes of conflicts appear in three forms: i) Demand induced scarcity (scarcity arising from increased demand caused by for example, population growth), ii) Supply-induced scarcity (scarcity arising from reduced total availability of certain resources due to degradation or depletion) and iii) Structural scarcity (scarcity arising from unequal distribution of or access to resources (Homer-Dixon, 1998). Forest resource use conflicts occur when different categories of forest resource users have competing demands for shrinking resources, and attaching different values to the resource base (Kisoza *et al.*, 2004). More importantly, the forest resource conflicts occur in settings that involve an array of culture, economic, and political arrangements that have some bearing on the outcomes of the conflict process (Kumar, 2000).

Resource use conflicts often emerge because people use and manage resources in different ways (FAO, 2000). According to Lewis (1996) resource-use conflicts may arise due to establishment of protected areas, resource scarcity, and crop damage by wild animals. Kisoza *et al.*, (2004) argues that policies and laws governing land tenure, deficiency of local institutions for community as well as environmental degradation are some of underlying causes of resource-use conflicts. Forest resource use conflicts imply that the institutional frameworks that currently exist often fail to deal adequately with disputes and conflicts (Niamir-Fuller, 1994). Conflicts are crucial not only for social change but also for the continuous creation of societies. Therefore, conflicts should not only be viewed as a dysfunctional relationship between individuals and communities that should be avoided at all cost, but also as an opportunity for constructive change and growth (Mayeta, 2004). However, this does not mean that conflicts do not often have tragic consequences for people and societies. Conflicts are accompanied by

suffering, destruction, fear, pain, separation and/or death. Guerrero-Arias (1995) argue that conflicts are used to designate any relationship between opposing forces whether marked by violence or not.

According to the World Bank (1994), conflicts between pastoralists and farmers are common in Tanzania. Such conflicts are due to differences in land use patterns (Fisher, 2000). Conflict over forests resource is ubiquitous (Anderson *et al.*, 1996). People everywhere have competed for forest resources as they want to enhance their livelihoods. Whether a conflict is good or bad depends on the way it is handled (CWS, 1998). While the interactionists believe that conflict is an essential part of human relations, it does not necessarily follow that all conflicts are good. If a conflict leads to improved group performance in achieving goals, then is a functional constructive form of conflict. But, where a conflict hinders achievement of goals then the conflict is destructive or dysfunctional (Kisoza *et al.*, 2004).

## **CHAPTER THREE**

### **3.0 MATERIALS AND METHODS**

#### **3.1 Description of the Study Area**

##### **3.1.1 Geographical location**

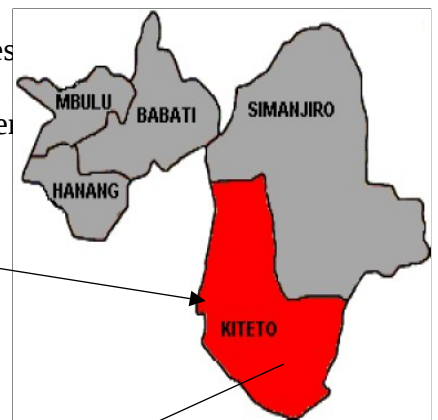
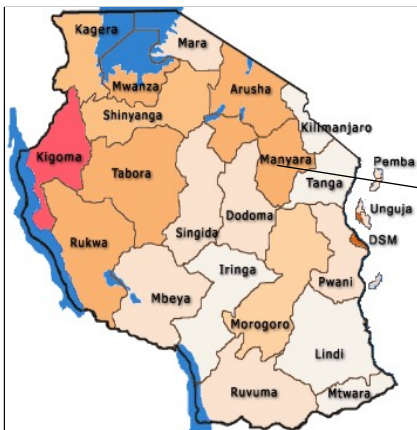
The study was conducted in three wards bordering SULEDO Village Land Forest Reserve in Kiteto district, namely Sunya, Lengatei and Dongo. The reserve lies between 4° and 6°6' S and between 36°15' E and 39° E. Six districts borders Kiteto District namely, Simanjiro in the North; Handeni in the East; Mpwapwa, Kilosa and Dodoma Rural District in the South, and Kondoa District in the West. The district area is approximately 268 000 ha out of which 167 416 ha are under SULEDO Village Land Forest Reserve. SULEDO VLFR is shared by ten villages namely: Sunya, Asamatwa, Olgira, Lengatei,

Lesoit, Olkitikiti, Engong’ongale Mтуру, Mesera and Laiseri (Figs. 2 and 3). The study villages were Sunya Lengatei and Laiseri.

### 3.1.2 Climate, Topography and Soils

The district annual rainfall ranges between 450 and 650 mm and occurs within the months of November/December and April/May. Average annual rainfall is 550 mm, particularly on the South eastern part of the district where SULEDO VLFR communities reside. Mean monthly temperature range between 15 and 22<sup>o</sup> C. SULEDO

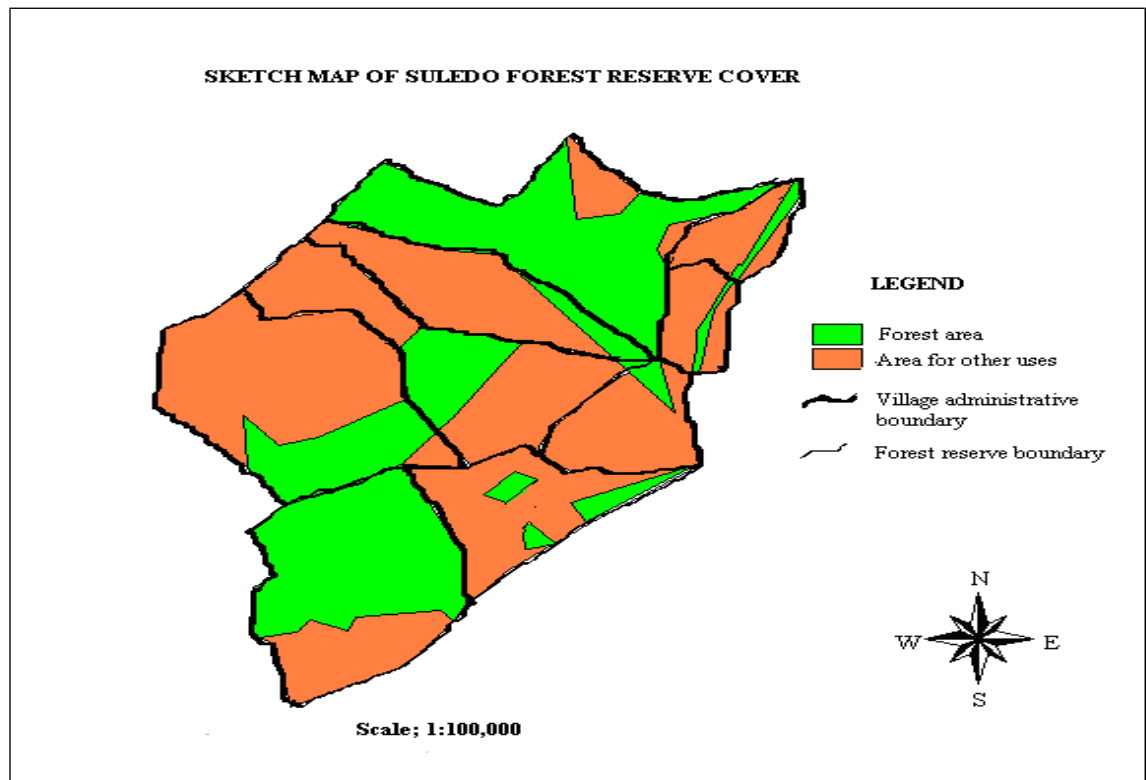
at the high altitude of Manyara region; it lies 1000 meters above sea level. Soils in the area are generally moderate to fertile soils.



SKETCH MAP OF SULEDO VILLAGES ADMINISTRATIVE BOUNDARIES



**Figure 2: Map showing the study villages**  
Source: Adopted with modification (LAMP, 2005)



**Figure 3: Map of SULEDO Village Land Forest Reserve**  
Source: (LAMP, 2005)



### 3.1.3 Population

According to 2002 human population census, Kiteto District has a population of 155 727 (URT, 2002b). The District ethnic composition include Maasai (32%), Gogo (27%), Rangi (18%) and the remaining (23%) is a mixture of smaller groups including Kamba, Nguu, Bena, Kaguru, Hehe, Sandawi, Burunge, and Wa-Arusha. Though the villages are composed of different ethnic groups, but each group tends to live in its own, ethnic based sub-villages (Lissu and Mitzlaff, 2007). The population in the study villages (Sunya, Lengatei and Laiseri) is as shown in Table 2.

**Table 2: Population size in the study villages**

<b>Village</b>	<b>Population</b>	<b>Males</b>	<b>Females</b>	<b>Households</b>
Sunya	5584	2811	2773	1 041
Lengatei	5316	2760	2556	1365
Laiseri	5948	2570	3378	814
<b>Total</b>	<b>16848</b>	<b>8141</b>	<b>8707</b>	<b>3220</b>

**Source: Population census 2002 with updates (URT, 2002b)**

### 3.1.4 Vegetation and Land use

SULEDO Village Land Forest Reserve is rich in miombo woodlands, the most dominant species are *Combretum molle* and *Dalbergia melanoxylon*, *Julbernadia globiflora* and *Brachystegia microphylla*. The dominance of *Combretum species*, *Dichrostachys cinerea* and

*Acacia polyacantha* in some clusters is a signal that there was once degradation (Malimbwi, 2000). The disturbances in these woodlands for the past ten years were caused among other by cutting of poles and trees. Malimbwi (2000) and Isango (2007) found that, the woodlands have a mortality rate of 1.5% per year which is slightly higher than recruitment rate of 1.3% per year.

The main land uses in the study area include grazing, agriculture, settlements, forest conservation, beekeeping, timber harvesting, firewood and honey gathering. The arable land is about 380 000 ha whereby a total of 75 080 ha are under cultivation which is about 19.8% of the total arable land. The leading land use category in the study area is grazing (LAMP, 2005).

### **3.1.5 Accessibility**

The study area is accessible through a road and is located at about 126 km South East of Kibaya Township, the headquarters of Kiteto District. Kijungu village located at 80 km on the Kibaya- Handeni road is an important stop over station before going to the south about 46 km where SULEDO forest is located. Another route to SULEDO is through South West via Chakwale settlement on the Morogoro - Dodoma highway in Kilosa District located about 60 km from Sunya ward headquarters. However, this route is only accessible during dry season.

### **3.1.6 Economic Activities**

Traditionally, the Maasai and Kamba are pastoralists and all the remaining ethnic groups are agriculturalists. However, this division has become less clear-cut over the years. Partly due to land scarcity and the modern lifestyle which has restricted

movements (Lissu and von Mitzlaff 2007). Thus pastoralists are also farming and keep less number of livestock, mostly goats, sheep and cattles. Poultry is common in almost all households, whether pastoralists or others. Thus, a combination of both activities prevails. Nevertheless, subsistence crop production is the main economic activity and source of livelihood in the study area. The most common crops are maize, beans, cassava and sugar cane. Other economic activities include charcoal making, beekeeping, traditional medicine (herbalists), as well as some small scale businesses (food stores and bars) in larger villages (Sunya and Lengatei). Moreover, illegal hunting (poaching) and illegal logging still prevails in the area.

## **3.2 Methods**

### **3.2.1 Sampling Procedures and Research Design**

A cross-sectional research design was adopted during data collection. Data were collected at a single point in time from selected sample of respondents to represent the population (Kajembe, 1994). This design was adopted because it is economical in terms of time and money. Three villages were selected one village from each of the three ward, on the basis of accessibility and proximity to the forest. A simple random sampling technique was used to select the number of households in the study villages and village registers were sampling frame. A total of 90 households were selected for structured interview, 30 households for each study village as recommended by Bailey, (1994) that a sample of at least 30 units is sufficient irrespective of the population size.

#### **3.2.1.1 Data collection**

The study was carried out in two phases. In the first phase, reconnaissance survey was conducted. Whereas second phase involved mainly Participatory Rural Appraisal and

questionnaire surveys. Primary and secondary data were collected by using different methods.

### **3.2.1.2 Primary data collection**

Qualitative data were collected by using PRA approach, participant observation, semi structured and unstructured interviews while quantitative data were collected by using structured interview. This triangulation of techniques helped to readdress limitations inherent in different techniques and allowed cross checking and verification (triangulations) (Mikkelsen, 1995).

#### **i. Participatory Rural Appraisal (PRA)**

Participatory Rural Appraisal (PRA) is a research approach in which local communities discuss issues that concern community priorities and problems and also evaluate options for solving problems and come up with community action plans to address the concerns that have been raised (FAO, 1997). Such issues include stakeholders and their roles in the management of forests, power types and struggles underlying forest use and management, socio-economic and institutional factors underlying dominant power struggle and forest use conflicts. Selection of individuals was assisted by Village Chairmen and Village Executive Officers. A range of 15- 20 participants were selected. The tools used in the PRA were Focus Group Discussions (FGD) and pair wise ranking (Appendix 1).

#### **Focus Group Discussions**

Focus Group Discussions were carried with users of the forest resources in order to obtain information on stakeholders, power struggles, forest resource use conflicts, and factors influencing dominant power struggle. The information which was obtained through this technique was used to fill gaps on information left by other data collection methods. In this study, FGD involved village government leaders, Village Environmental Committee (VEC) members, members of the Zonal Environmental Committee (ZEC), prominent people in the study villages (old people) and youths.

### **Pair wise ranking**

Pair wise ranking is a structured method which is used in ranking a small list of items in priority of order. This technique was employed to rank power types (Strategic, institutional and structural) underlying management and utilization of SULEDO Village Land Forest Reserve.

### **ii. Participant observation**

During participant observation the researcher participated in activities of the community being observed with or without their knowledge that they were being observed. Consequently the researcher was having an opportunity to compare what the respondents reported with what was actually observed. This method helped the researcher to gain understanding on the socio economic activities and power struggles that underline the use and management of the forest resources. Mikkelsen (1995) reported that the method has an advantage of establishing intimacy between the

researcher and the rest of the community, and thus promoting both the telling and the judgment of facts.

### **iii. Structured interview**

Structured interview was used to collect quantitative data from a sample of households. Both open and closed-ended questions were used to collect data from the households. The data collected were on power types, power struggles, stakeholders and their roles, socio- economic and institutional factors underlying dominant power struggle and forest use conflicts as a result of existing power struggles (Appendix 2).

### **iv. Semi structured and unstructured interviews**

Semi structured and unstructured interviews were administered to key informants to collect qualitative data. According to Mettrick (1993), key informants are individuals who are accessible, willing to talk and have a great depth of knowledge about issues in question. The method was used so as to get data which was not covered during the PRA exercises, structured interview and participant observation. Key informants were facilitators, (ORGUT) regulators included (District Forest Officer, VEC, and, ZEC, Village Government Leaders) and users (traders, farmers and pastoralists). The discussion was on the roles of each stakeholder in utilizing and managing the forest, power struggles, and socio- economic and institutional factors underlying key power struggle and on resources use conflicts (Appendix 3). An in-depth interview was conducted with key individuals in each stakeholder group to understand the larger context of power struggles on forest resource use and management (Appendix 4).

### **3.2.1.3 Secondary data**

Literature survey with reference to stakeholders and their roles, types of power, power struggles, socio- economic and institutional factors underlying dominant power struggle and forest resource use conflicts, were collected in published and unpublished documents from various sources including the Sokoine National Agriculture Library, District Forest Offices in Kibaya Township, village offices in the study area and from websites.

### **3.2.2 Data Analysis**

Qualitative and quantitative methods of data analysis were used in this study (Appendix 5).

#### **3.2.2.1 Qualitative data analysis**

Content analysis technique was employed to analyze qualitative data and information from the discussion with key informants and FGDs. According to Stemler (2001), content analysis technique is a systematic, replicable technique for compressing many words of text to a set of categories that represent some characteristics of the research. 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. Stakeholders' analysis was also done in analyzing power relations.

### 3.2.2.2 Social Network Analysis (SNA)

Data from in-depth interviews, conducted with key informants in each stakeholder group was analyzed using Ucinet 6 computer programme. The analysis focused on the overall structure of the networks both within and across stakeholder groups. The analysis included:

- **Stakeholders interactions:** assess stakeholders interactions by identifying stakeholders who are having more interactions among themselves.
- **Degree of centrality:** assesses stakeholders who had the most connections to other stakeholders. The more connection indicates that stakeholders have more influence in management and utilization of forest resources (Wasserman and Faust, 1994).
- **Betweenness of centrality:** looked at stakeholders position on the paths as compared to other stakeholders

### 3.2.2.3 Quantitative data analysis

Both descriptive and inferential statistical analyses were carried out. All the quantitative analyses were performed using Statistical Package for Social Sciences (SPSS) Computer Programme Version 16. Descriptive statistical analysis was used to explore data among others for distribution of responses, and multiple response analyses were also performed to ascertain responses and percentages. Logistic regression model was used to show the relationship between dependent and independent variables.

### Logistic regression analysis



### **Analysis of socio-economic and institutional factors underlying dominant power struggle**

A logistic regression model was used to assess the likelihood of socio-economic and institutional factors underlying dominant power struggle in the management and utilization of forest resources. The model was applied because the data collected were both continuous and categorical in nature. Perception on the existence of dominant power struggle was dependent variable, with the value of 1 if the response was yes and zero if the response was no. Using the regression coefficients ( $\beta$ ), the prediction model was developed. The independent variables underlying the dominant power struggle in this study included education level, residence duration, age, wealth category, farm size, and distance from homesteads to the resource base, immigration, household size, political involvement and membership in VEC. A linear combination of independent variables was established for prediction purposes.

Logistic regression model used was

$$Y_i = \frac{1}{1 + e^{-z}} \dots\dots\dots (1)$$

$Y_i$  = the  $i^{\text{th}}$  observation value (Score) of the dependent variable representing a linear combination of independent variables underlying dominant power struggle in the study area.

$Y_i$  is a binary variable with value of 1 if the respondent reported existence of dominant power struggle in the management and utilization of SULEDO VLFR and 0 if otherwise.

$e$  = Natural logarithm equal to 2.718

$$Z = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots\dots\dots \beta_n X_n + e_i$$

Where;

$Z$ = Summation of independent variable.

$X_1$  to  $X_n$ = Independent variables (education level, residence duration, age, political involvement, committee member, wealth category, farm size, distance from homesteads to resource base, immigration and household size).

$\beta_0$ = constant term of the model without the independent variables.

$\beta_1$ - $\beta_n$ = Independent variable coefficients showing the marginal effects (negative or positive) of the unit change in the independent variables on the dependent variable and these were used in developing prediction equations on the dominant power struggle.

$e_i$ = random error term,

$i=1, 2, 3, 4, 5, \dots, N$  (Total number of respondents) = Sample size i.e. for the purpose of this study),

$n$ =total number of independent variables ( $n=10$ )

From the model, the independent variables included in the model were:

$X_1$  = Wealth category: Wealth category could increase the likelihood of power struggles because of the differences in bargaining power and disparities in resource endowment and entitlement. Increasing household wealth differentiation was likely to increase power struggles because wealthier people have strategic power that is used against the poor in forest resource allocation. Wealth category was coded with value 1 if respondent was assumed to be rich and 0 if otherwise and expected sign of the regression coefficient was positive ( $+\beta$ ).

$X_2$ = Immigration was assumed to have positive sign of the regression coefficient ( $+\beta$ ).

It was assumed that by increasing the population size in a village, power struggles also

tend to increase. This is because increase in population leads to increase demand of forestland resulting to encroachment in adjacent Community Based Forest Reserve. The variable was recorded with value 1 was assigned if immigrant or 0 if not.

$X_3$  = Distance (km) from homesteads to the resource base. It was assumed that by increasing the distance from the resource base to homesteads, reduces incidences of power struggles in a given area. Distance to resource base was recorded with respect to estimated kilometers from where respondent was staying to the forest reserve. Distance from homesteads was assumed to have negative sign of the regression coefficient ( $-\beta$ ).

$X_4$  = Level of education of respondent in years tends to create awareness, self-reliance, stimulate self-confidence, motivation and positive attitude. So it was assumed that people with higher education have more livelihood options compared to less educated people, therefore are less likely to cause power struggles. Level of education was recorded with respect to the number of years that a respondent had spent in schooling. The expected sign of the regression was negative ( $-\beta$ ).

$X_5$  = Age of a respondent in years. It was assumed that increase in age of the respondent reduces the incidence of power struggles because older people are assumed to have much wisdom related to resource use and in resolving power struggles through reconciliation committees. This variable was assumed to have a negative value of the expected signs of the estimate ( $-\beta$ ).

$X_6$  = Farm size (ha) was assumed have negative sign regression coefficient ( $-\beta$ ). Households with larger farm sizes have fewer incidences of power struggles when individuals acquire enough land because they are capable of allocating it for different uses. Farm size was recorded with respect to the number of hectares that a respondent owns.

$X_7$  = Duration of residence (years). It assumed that the more time a person stays in a particular area, the less the incidences of power struggles, and this situation is due to the fact that an individual who has stayed in a particular place for a long time is assumed to have own enough land resources to meet his or her livelihoods than an immigrant to the area. Duration of residence is assumed to have negative regression coefficient ( $-\beta$ ).

$X_8$  = Household size was assumed to have positive sign regression coefficient ( $+\beta$ ). It was assumed that an increase in household size lead to increase of power struggles in SULEDO VLFR. This is because larger number of members in a household tends to increase demand of the forest resources. The variable was recorded with respect to the number of people having the common catering arrangement and expected sign of the regression coefficient was positive ( $+\beta$ ).

$X_9$  = Individual's political position was assumed to have positive sign of estimated coefficient ( $+\beta$ ). Politics refers to the relationships within a group or organization which allow particular people to have power over others. Individuals with political positions are granted institutional power on management and utilization of forest

resources hence increases incidences of power struggles. The variable was recorded with respect to the number of household members who hold political positions.

$X_{10}$ =Membership in Village Environmental Committee was assumed to have positive sign of estimate regression coefficient ( $+\beta$ ). Memberships in Village Environmental Committee grants institutional power on resource management. It was assumed that individuals with institutional power on resource management, also has strategic power on access of forest resources and hence increases the incidence of power struggles. The variable was recorded with respect to the number of household members who are also member of VEC.

## **CHAPTER FOUR**

### **4.0 RESULTS AND DISCUSSION**

#### **4.1 Overview**

The chapter presents research findings with respect to the objectives. These include main stakeholders, their roles and interactions in the management and utilization of SULEDO VLFR, types of power and power struggles underlying SULEDO VLFR, socio-economic and institutional factors underlying dominant power struggle and forest use conflicts as a results of power struggles.

## 4.2 Main Stakeholders, their Roles and Interactions in the Management of SULEDO Village Land Forest Reserve

Table 3 shows stakeholders identified in the study area with respect to management and utilization of SULEDO VLFR. In this study, a stakeholder refers to a person or group with an interest or performs roles and responsibilities with regards to forest resources. Stakeholders identified include Communities, Non-Governmental Organizations (NGOs) and Governmental Organizations. Community in this study refers to people that live in a geographically bounded area that are involved in social interaction and have one or more psychological and sociological ties with each other and with the place in which they live (Robinson and Maganga, 2009).

### 4.2.1 Main stakeholders and their roles

Table 3 presents categories of stakeholders and their roles in SULEDO VLFR. Three categories of stakeholders namely regulators, facilitators and users were identified in SULEDO VLFR whereby 7 stakeholders were regulators while 15 were facilitators and 3 were users.

**Table 3: Main stakeholders and their roles**

SN	Name of stakeholder	Category	Role of stakeholders
1	FBD	Regulator	Provision of Technical advice and approving model by laws
2	MRNRO	Regulator	Provision of technical advice
3	DFO	Regulator	Provision of technical advice on the management of SULEDO VLFR
4	VEC SUNYA	Regulator	To prepare and submit monthly reports to ZEC, to ensure that SULEDO VLFR is utilized and managed in accordance with the laid down procedure
5	VEC LENGATEI	Regulator	To prepare and submit monthly reports to ZEC, to ensure that SULEDO VLFR is utilized and managed

6	VEC LAISERI	Regulator	in accordance with the laid down procedure To prepare and submit monthly reports to ZEC ,to ensure that SULEDO VLFR is utilized and managed in accordance with the laid down procedure
7	ZEC	Regulator	Payment of profit shares to the 10 villages, receiving and discussing all conservation and utilization reports for SULEDO VLFR
8	UDSM	Facilitator	Provision of education on financial management and provision of expertise for preparation of harvesting contract
9	CORDS	Facilitator	Helping in the establishment of land use plans
10	FARM-AFRICA	Facilitator	Support in finding market for carbon credits
11	KINNAPA	Facilitator	Support in land issues and conflict resolution
12	SWEAT	Facilitator	Support in land issues and conflict resolution
13	L&HR	Facilitator	Provision of education on land rights and human rights
14	MM	Facilitator	Educating SULEDO communities on forest conservation
15	TATeDO	Facilitator	Provision of education to SULEDO communities on how to make high quality charcoal
16	TFCG	Facilitator	Provision of training on forest conservation
17	FTI	Facilitator	Provision of inventory equipments and provision of training on basic forest conservation methods
18	UWAMASU	Facilitator	Provision of technical advice on community rights on the resources surrounding them
19	ORGUT	Facilitator	Provision of technical advice, provision of fund, helping in monitoring and evaluation and to linking SULEDO communities with other stakeholders
20	SUA	Facilitator	Research and provision of technical advice
21	TAFORI	Facilitator	Research and provision of technical advice
22	AWF	Facilitator	Provision of funds for the establishment of village wildlife management area and provision of education on right of villagers to wildlife
23	COMMUNITY SUNYA	User	Owners and users of forest resources from SULEDO VLFR
24	COMMUNITY LAISERI	User	Owners and users of forest resources from SULEDO VLFR
25	COMMUNITY LENGATEI	User	Owners and users of forest resources from SULEDO VLFR

#### 4.2.1.1 Regulators in SULEDO VLFR

The regulators identified include Forestry and Beekeeping Division (FBD), Manyara Regional Natural Resource Office (MRNRO), Kiteto District Forest Office (DFO), SULEDO Zonal Environmental Committees (ZEC) and Village Environmental Committees (VEC). The main roles of the regulators include enforcing forest Act No. 14 of 2002 and other laws relating to forest resources and their regulations in order to ensure that the overall objective of managing and conserving SULEDO VLFR is achieved. The specific roles of FBD were to provide technical advice for the management and utilization of SULEDO VLFR and approving model bylaws. Model

bylaws are approved by the central government. Likewise, FBD is responsible for the provision of guidelines for the implementation of SULEDO VLFR. The roles of MRNRO were to provide technical advice in the management and utilization of SULEDO VLFR and coordinating the local and central government in the management of SULEDO VLFR. The specific role of DFO was to provide technical advice on the management of SULEDO VLFR.

On the other hand ZEC is responsible for the payment of all forest management costs, payment of shares to the ten villages surrounding the reserve after deducting management costs as stipulated in the agreements for managing and harvesting of forest products signed between ZEC and the ten village governments. Entering into contracts with buyers and /or users of all kinds of products within SULEDO VLFR. ZEC is also responsible for employing experts of different fields for the purpose of undertaking suitable management of SULEDO VLFR. In short, ZEC has the overall responsibility of sustainable management and utilization of SULEDO VLFR. The specific roles of VEC include collecting money emanating from fines for different offences which do not exceed USD 31.00. Taking legal measures against persons committing offences against SULEDO forest regulations. Whereas the other role of VEC was to ensure that SULEDO VLFR is utilized in accordance with SULEDO Management plan. VEC is also responsible for ensuring that forest scouts patrols are properly conducted.

#### **4.2.1.2 Facilitators in SULEDO VLFR**

Facilitators are those found facilitating the communities in different ways mainly through encouraging, supporting and guiding. In SULEDO VLFR the main facilitators



were ORGUT, Sokoine University of Agriculture (SUA), Tanzania Forest Research Institute (TAFORI), Africa Wildlife Foundation (AWF), University of Dar es salaam (UDSM), Community Research and Development Services (CORDS), Farm Africa, Kibaya Kimana Njolo Ndaleta Nameloku Pastimbo (KINNAPA), Sunya Ward Education and Training (SWEAT), Legal and Human Rights (L&HR), Mama Misitu (MM), Tanzania Traditional Energy Development Organization (TATeDO), Tanzania Forest Conservation Group (TFCG), Forest Training Institute, Olmotonyi (FTI) and Umoja wa Wanaharakati wa Mazingira SULEDO (UWAMASU). These organizations do facilitate management activities of SULEDO VLFR through the provision of technical and financial support.

ORGUT is the most prominent facilitator due to the fact that it works very closely with SULEDO communities in the management of the reserve. Its main roles include provision of technical and financial support. ORGUT also provided training on financial management to the ten villages surrounding SULEDO VLFR, with the objective of assisting communities in the management of revenue generated from harvesting of forest resources. Moreover, ORGUT provided training on procurement procedures. In addition, from 1994 to 2010 ORGUT provided 4 motorcycles and 2 Landcruiser hardtops for management activities of SULEDO VLFR. On the other hand ORGUT linked SULEDO community with other stakeholders within and outside Tanzania. For example, in 2009 ORGUT linked SULEDO with UDSM for the purpose of preparation of harvesting contract. Furthermore UDSM facilitated training on financial management while *Mama Misitu* provided conservation education to communities surrounding SULEDO VLFR through video shows.

Sokoine University of Agricultural supported SULEDO VLFR through research which aimed at improving the management of the reserve. In 2009-2010 SUA conducted research aimed at contributing to evidence-based development of Participatory Forest Management. Tanzania Forestry Research Institute on the other hand facilitated SULEDO VLFR through research aimed at assessing increment of the forest before harvesting and the impact of harvest on the remaining trees. African Wildlife Foundation facilitated SULEDO VLFR through provision of fund for the establishment of village Wildlife Management Area (WMA) and provision of training on the rights of villagers to wildlife.

The study showed that TATeDO facilitated education to the communities on how to make high quality charcoal from the branches left after timber harvesting. Whereas, TFCG provided training on forest conservation. Community Research and Development Services facilitated establishment of land use plans in Sunya, Asamatwa, Olgira, Lengatei, Lesoit, Olkitikiti, Engong'ongale Mтуру, Mesera and Laiseri villages surrounding SULEDO VLFR. Also CORDS assisted in developing land use plans aimed at reducing land use conflicts between farmers and livestock keepers. Furthermore, CORDS offered training to communities surrounding SULEDO VLFR with the purpose of empowering them and enabling them to govern their forest resources, which will lead to optimal forest resource use and sustainable development. Farm Africa supported in finding market for carbon credits while KINNAPA supported SULEDO communities in making land use plans and setting village boundaries for all villages. Kibaya Kimana Njolo Ndaleta Nameloku Pastimbo also supported resolving

land use conflicts by forming land use committees in each village and train the committees on their responsibilities. Sunya Ward Education and Training facilitated SULEDO VLFR by supporting the communities in land use planning with regards to conflicts resolution. Forest Training Institute, Olmotonyi supported SULEDO communities through provision of equipments for inventory. Moreover FTI supported SULEDO through provision of training on the basic forest conservation methods. Lastly, UWAMASU the only Community Based Organizations in SULEDO VLFR, facilitated SULEDO community by providing technical advice on community rights with regards to forest resources around them.

#### **4.2.1.3 Users in SULEDO VLFR**

Table 3 shows different forest users in SULEDO VLFR including pastoralists, farmers, and traders. It was revealed that all users were directly connected to the forest resources through collection of firewood, withies and poles. Other products collected from the forest include Non Timber Forest Products (NTFPs) such as fruits, mushrooms, honey, small games, fodder and herbs. In principle there are no permits for collection of forest resource for domestic purpose while permits and fees are required when commercial activities are involved.

Farmers are cultivating around the forests where moisture conditions and soil fertility are rather favourable than in farm lands located far away from the forest. During discussions with key informants it was revealed that farmers get environmental services from the forest including water whereby some farmers in Sunya village practice irrigation farming during dry season. Traders on the other hand do trading on forest

products. It was revealed during the study that some of the traders pay fees to get permits. Pastoralists are directly connected to forest resources through utilizing SULEDO VLFR as a grazing area. Pastoralists utilize the forest specifically during dry seasons when pasture and water becomes scarce. URT (2003) reported that pastoralists and farmers in Uluguru Mountains use water from the forest reserve for livestock keeping and production of both food and cash crops.

Generally speaking farmers, pastoralists and traders in SULEDO participate in the management of the forest resources through Community Based Forest Management (CBFM) which started in 1994 with support from ORGUT.

#### **4.3.2 Stakeholders interactions in the management of SULEDO VLFR**

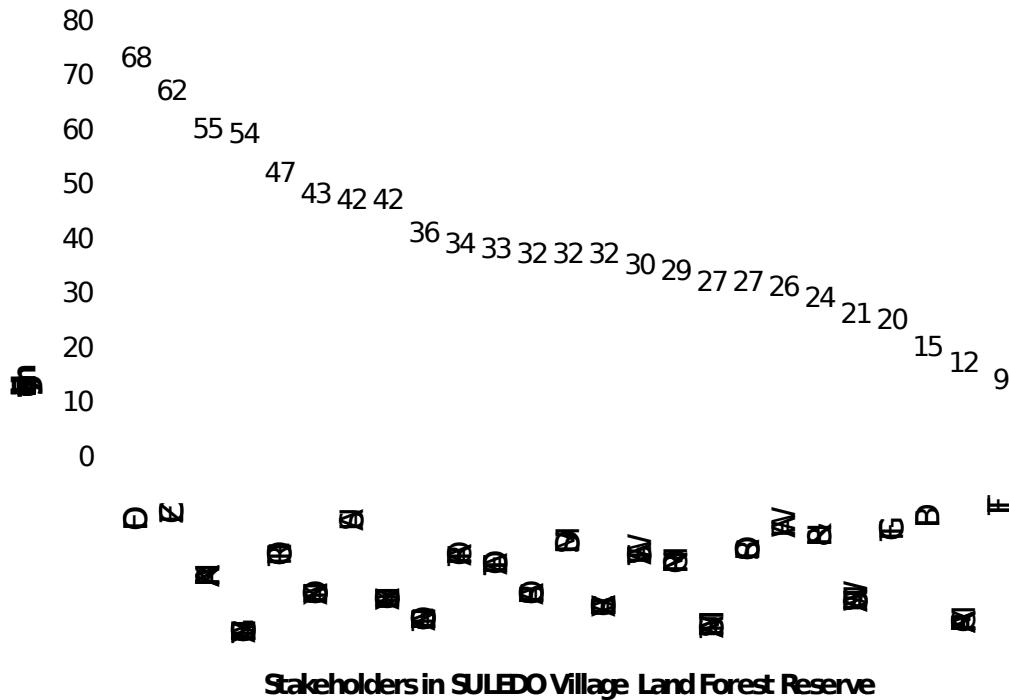
Fig. 4 shows a social network comprising 25 stakeholders (also referred to as ‘nodes’) and links showing interactions or flows between the nodes (Prell *et al.*, 2007). Stakeholders are connected if there is relationship among them in the management of SULEDO VLFR. Fig. 4 indicates that DFO, ORGUT and ZEC have many ties (highly centralized), therefore they are located at the centre of the network. The common characteristic of central actors is that they are responsible for regulating forest resources and the fact that they can make connections with other stakeholders.

Fig. 4 also shows that stakeholders including TFCG, UDSM, L&HR, TATeDO, CORDS, SWEAT, Farm Africa, FTI, FBD, AWF, SUA, MRNRO and TAFORI have few ties (low centrality), therefore they are located at the periphery of the network. This implies that those are marginal stakeholders in the network but they are important



**Figure 4: Social network of stakeholders in SULEDO Village Land Forest Reserve****4.2.2.1 Stakeholders Degree of Centrality in the management of SULEDO VLFR**

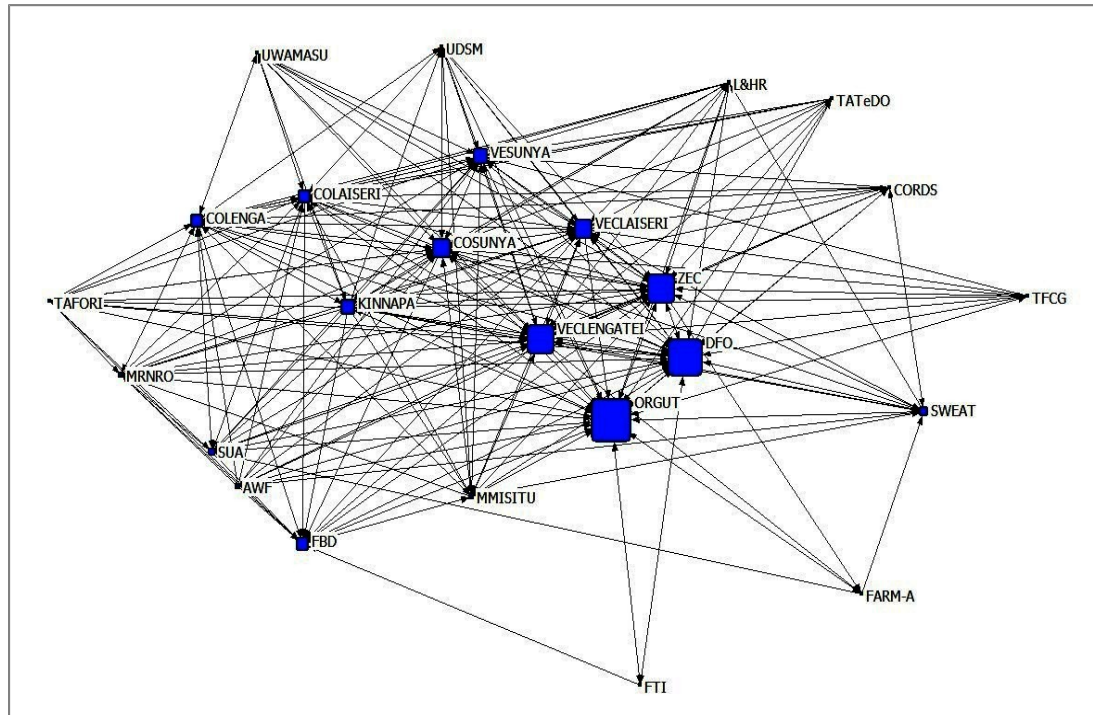
Fig. 5 shows Freeman's degree of centrality of the stakeholders. Degree of centrality refers to the number of ties (Freeman, 1979). District Forest Officer is highly connected to other stakeholders with 68 scores. This implies that DFO has higher influence in the management of SULEDO VLFR. District Forest Officer is playing an important role in mobilizing stakeholders in the network. Fig. 5 shows that DFO is highest in the hierarchy with regard to the management of SULEDO VLFR, meaning that has both institutional and structural powers. The study also revealed that FTI has 9 scores of degree of centrality which is the lowest in the network. This indicates that FTI has less influence in the network. Wasserman and Faust (1994) argue that stakeholders with low centralities in the networks can be encouraged to mobilize other stakeholders through inclusive dialogue.



**Figure 5: Degree of centrality among stakeholders in SULEDO Village Land Forest Reserve**

**4.2.2.2 Stakeholders position in the management of SULEDO VLFR (betweenness of centrality of stakeholders)**

Fig. 6 shows various sizes of nodes which indicate relative betweenness of centrality of stakeholders in management and utilization of SULEDO VLFR. ORGUT was found to hold high betweenness of centrality in the network compared to other stakeholders. This is due to the fact that ORGUT has a number of sources of information outside the network. It is worth noting that ORGUT was working with SULEDO VLFR since its establishment. Furthermore, the DFO has potential source of information outside the network due to the fact that the DFO has institutional powers on all forest resources around Kiteto District and before other stakeholders enter in relation with SULEDO VLFR had to consult the DFO.



**Figure 6: Betweenness of centrality of stakeholders in SULEDO VLFR**

### **4.3 Types of Power and Power Struggles Underlying SULEDO VLFR**

#### **4.3.1 Types of power underlying SULEDO VLFR**

Table 4 shows three categories of power identified in Sunya, Lengatei and Laiseri villages namely strategic, institutional and structural underlying the utilization and management of forest resources. Moreover, Table 4 shows that key users in all the study villages were pastoralists. Pastoralists were found to have institutional power. It was revealed that some pastoralists were holding positions in the village governments hence this granted them institutional power for the use and management of forest resources. On the other hand, pastoralists were found to have strategic power. It was



revealed that pastoralists usually give bribery to village government leaders for getting accessibility to the forest resources due to their strategic power. Mbeyale (2009) argued that users including pastoralists and timber traders in Chome forest Reserve were having strategic power, due to the fact that they were giving bribery to the Forest Assistants for getting accessibility to the forest.

**Table 4 Pair Wise Ranking of Power types**

Stakeholders	Strategic power (1)	Institutional power (2)	Structural power (3)
<b>Sunya village</b>			
Key users (pastoralists)	X	√	√
Key regulator (ZEC)	√	√	√
Key facilitator (ORGUT)	√	X	X
Sub- score	2	2	2
<b>Lengatei village</b>			
Key user (pastoralists)	√	√	X
Key regulator (ZEC)	√	√	√
Key facilitator (ORGUT)	√	X	X
Sub- score	3	2	1
<b>Laiseri village</b>			
Key user (pastoralists)	√	X	√
Key regulator (Village council)	√	√	√
Key facilitator (ORGUT)	√	X	X
Sub- score	3	1	2
Total scores	8	5	5

**Key**

√= presence of respective power

X= absence of respective power

Furthermore, the Maasai pastoralists age set system gives them structural power. Mbeyale (2009) in the study carried out in Pangani river basin argued that Maasai pastoralists age set system give them structural power, as the resource use control is

highly regulated by the Laibon and Laigwanan who can either bridge or break the communication flow with the village government leaders depending on their perception of issues at hand.

Moreover, the study shows that ZEC was a key regulator in Sunya and Lengatei villages while in Laiseri village, village council was a key regulator having strategic power. During Focus group discussions it was revealed that all village revenues are managed by village councils hence this granted the village councils strategic power. Moreover, it was revealed further that village councils had higher position at the village level hence these granted them structural power. ZEC and village council were also found to have institutional power. Due to the fact that the 1998 Forest Policy and the 2002 Forest Act No.14 have given institutional power to the village governments to work with forest officers in the management of the forest resources around them (Section 4.1.1 and 4.1.2 of the policy and part 5 section 23 of the Act). In this case, Zonal Environmental Committee and Village councils have the responsibility to take care of the forests within their jurisdiction.

ORGUT was found to be a key facilitator in all the study villages having strategic power. The financial capacity of ORGUT had granted ORGUT strategic power over forest resources management in SULEDO VLFR. ORGUT had been facilitating SULEDO VLFR since 1994 when SULEDO VLFR was established. To date ORGUT is facilitating the management of SULEDO VLFR by providing financial and technical support on forest management and utilization.

#### **4.3.2 Dominant power underlying the management and utilization of SULEDO VLFR**

Table 4 shows that strategic power was dominant in the study area with 8 scores, due to the fact that the key user (pastoralists), key regulator in Lengatei (ZEC), key regulator in Laiseri (Village council) and key facilitator (ORGUT) all found to have strategic power. It was revealed that pastoralists were giving bribery to village governments leaders for accessing grazing areas in SULEDO VLFR. Mbeyale (2009) argued that strategic power of the pastoralists lies in their animals wealth which can easily be used to corrupt village government leaders for accessing grazing areas in the forest reserves. Moreover, ZEC has the overall responsibility of collecting all revenue from SULEDO VLFR hence granted ZEC strategic power on management and utilization of the forest resources. Village councils have a responsibility of collecting all villages revenues hence granted the village councils strategic power with regard to the management and utilization of forest resources. Since 1994 ORGUT has been providing funds and experts for facilitating management of SULEDO VLFR. This implies that in general, strategic power dominate in SULEDO VLFR and has higher influence in the management and utilization of forest resources.

Table 4 also shows that institutional power was having 5 scores. During the discussions with key informants it was revealed that key user (pastoralists) found to have institutional power. Some pastoralists were holding positions in the village governments hence this granted them institutional power with regard to the management and utilization of SULEDO VLFR. Key regulator (ZEC) also found to

have institutional power. During the discussions with key informants it was revealed that ZEC has the overall responsibility of sustainable management of SULEDO VLFR, hence this granted ZEC institutional power with regard to forest resource management and utilization. The findings concur with that of Mohamed (2009) who indicated that members of Village Environmental Committees, Village Natural Resource Committees and Village Government exercise some institutional power over the forest resources that are in the villages around Nyanganje Forest Reserve. The results are also in line with those of Mbeyale (2009) who found that village chairmen, Village Executive Officers (VEO), Ward Executive Officer (WEO) and District Natural Resources Officers (DNRO) around Chome Forest Reserve exercise some institutional power over forest resources.

Table 4 also shows that structural power was having 5 scores. During focus discussions it was revealed that pastoralists were using structural power in forest resource utilization. This can be attributed to the fact that most of the Maasai pastoralists have stayed in the area for more than 50 years. Hence they do not accept to pay fees for grazing their livestock in the reserve during dry seasons, they think that they have traditional rights. Mbeyale (2009) pointed out that, maasai pastoralists in Pangani river basin were using structural power in utilizing the natural resources, because they had been in the area for long time. ZEC has the overall responsibility in managing and utilizing the forest resources found in SULEDO VLFR, hence this granted ZEC structural power. Moreover at the village level village councils are highly positioned with regards to village issues hence this granted village councils structural power over forest resources utilization and management.

### 4.3.3 Power struggles in SULEDO VLFR

Table 5 shows occurrence of power struggles in the study area. The results revealed that 60% of respondents in Sunya village reported that there are power struggles in SULEDO VLFR while 40% reported there are no power struggles. In Laiseri village 73.3% of respondents pointed out that there are power struggles in SULEDO VLFR while 26.7% reported that there are no power straggles. In Lengatei village 70% reported existence of power struggles while 30% refused that there are no power struggles in SULEDO VLFR.

**Table 5: Existence of power struggles in SULEDO VLFR**

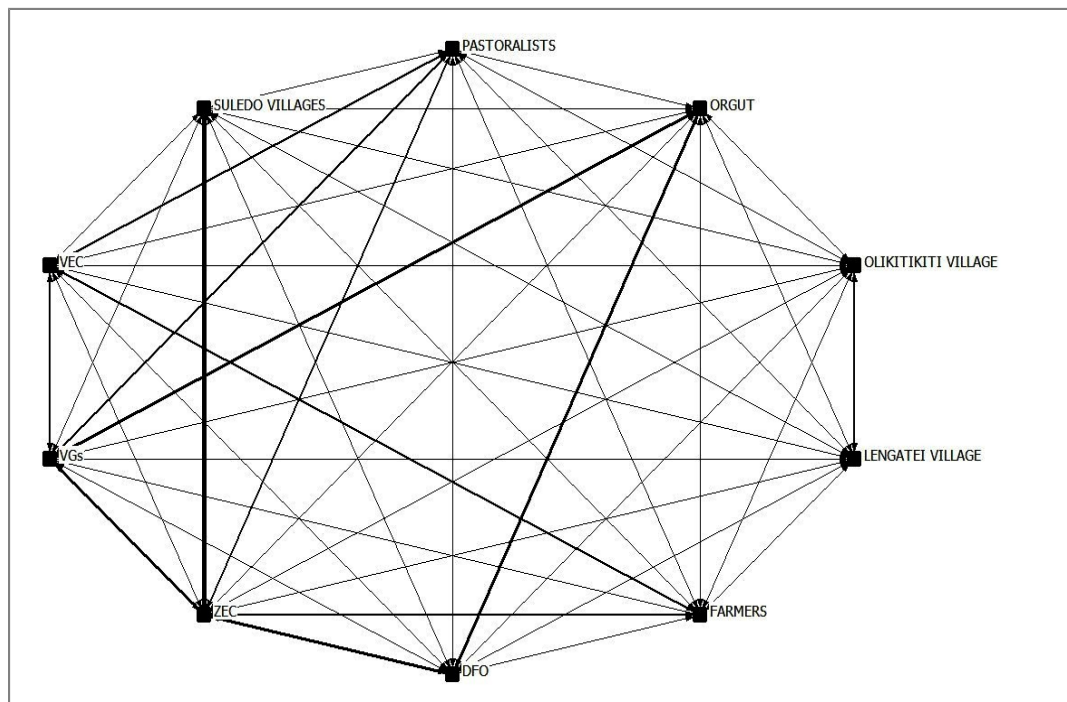
Power struggles	Name of Village			
	Sunya F (%)	Laiseri F (%)	Lengatei F (%)	Total F (%)
No	12 (40)	8 (26.7)	9 (30.0)	29 (32.2)
Yes	18 (60)	22(73.3)	21 (70)	61 (67.8)
Total	30 (100)	30(100.0)	30(100)	90 (100)

**Key:** F=frequency

### 4.3.4 Dominant power struggle in SULEDO VLFR

Fig. 7 show stakeholders involved in power struggles over utilization and management of forest resources. The thickness of the lines indicates intensity of power struggles among stakeholders. Thicker lines representing higher intensity of power struggles while thin lines representing weak power struggles among the stakeholders.

The dominant power struggle identified was between Zonal Environmental Committee (ZEC) and ten villages forming SULEDO VLFR namely Sunya, Asamatwa, Olgira, Lengatei, Lesoit, Olkitikiti, Engong'ongale Mтуру, Mesera and Laiseri, over distribution of income accrued from timber harvest in an area demarcated for trial harvesting referred to as pilot area. This is mainly attributed to unfulfilled expectations of villagers with regard to timber harvesting. The villages expected to receive USD 27 950 each from timber harvesting in 500 ha but only 92 ha were harvested and only USD 14 907 were collected.



**Figure 7: Dominant power struggle in SULEDO VLFR**

Out of USD 14 907, USD 8 696 were used by ZEC for administrative purposes and USD 6 211 were divided among the villages whereby each village got USD 621. The plausible explanation for the power struggle caused by unequal distribution of income

from forest harvesting, as reported by 18.8% of the respondents in the study villages (Table 6).

ZEC is responsible for revenue collection and reporting to the village general assemblies. According to respondents, 8.3% reported lack of accountability by ZEC which resulted into a power struggle. ZEC was not reporting appropriately the harvesting progress, income and expenditure, as a results communities blamed ZEC for misuse of the funds. The findings concur with those reported by Nuijiten (2005) who pointed out that, organizations or officials who do not operate according to ethics of accountable management are usually labeled as corrupt hence causing a power struggle leading eventually to forest resource use conflicts.

**Table 6: Reasons for power struggles in SULEDO VLFR**

Reasons for power struggles	Frequency (n=90)	Percentage (%)
Restriction of pastoralists to utilize grazing land in SULEDO VLFR	26	54.2
unequal distribution of income from forest harvesting	9	18.8
Lack of accountability from village leaders	4	8.3
No clear boundaries between Kiteto district and neighbour districts	3	6.2
Misuse of revenue from the forest	3	6.2
No clear boundaries in the forest between villages	3	6.2
Total	48*	100

\*The number do not add up to 90 due to missing values

Moreover during discussions with Key informants it was revealed that power struggle between ZEC and the ten villages forming SULEDO is also due to higher overhead costs. This was due to the fact that Village Environmental Committes and Executive Committee composed of 10 members including forest manager, chairperson and

secretary of ZEC receive allowances during their meetings. Members for these committees receive USD 3.00 per day during working days. It was found that USD 8 696 was spent on payments of allowances instead of covering expenses of community projects including construction of classrooms, school furniture and water Projects. As a result, some villages are against harvesting of their forest areas because they don't see benefits from the activity. Therefore, they have proposed in the contrary to clear fell a portion of the forest reserve for crop production in which all villagers will benefit rather than conserve the forest for such long time and only few people seem to benefit. On the same line of thinking, Kisoza *et al.* (2004) argue that the greater unequal distribution of scarce forest resources in a system, the greater will be the power struggle which create conflicts of interests between dominant and subordinate segments of the society. Peet and Watts (1996) pointed out that forest resources are embedded in a shared social space where complex and unequal relations are established among a wide range of social actors. Those actors with the greatest access to power are also able to control and influence natural resource decisions in their favour.

#### **4.3.4 Other power struggles in SULEDO Village Land Forest Reserve**

Fig. 7 shows power struggle between two groups ZEC and ORGUT on one side (first group) and Village Governments and DFO on the other side (second group). Table 6 shows that 6.2% of the respondents reported that the power struggle is due to misuse of revenue from the forest. Discussion with key informants revealed that the second group is not satisfied with how SULEDO is being managed, harvested and how the income from forest is utilized. It was found that ZEC and ORGUT spend a total of USD 5 590



per year for paying the forest manager (USD 373 per month) and covering running costs of motorcycle of the ZEC secretary (USD 93.00 per month). Village Governments and DFO argued that the first group is benefiting more from the forest revenue rather than the local communities who are the managers of the forest resources. If this situation continues then the forest will become unsustainably managed. Niamir-Fuller (1994) argued that power struggles may arise due to misuse of forest resource revenues by higher authorities and reluctance of higher authorities to take actions in time to diffuse tensions.

Fig. 7 further shows power struggle between Village governments (regulator) and pastoralists (user) over the use of grazing lands found in SULEDO VLFR. This is mainly attributed to scarcity of grazing lands that force pastoralists to graze in SULEDO VLFR. Table 6 shows that 54.2% of the respondents reported that, restrictions on pastoralists to utilize grazing land in SULEDO VLFR as one of the causes of power struggle between Village governments and pastoralists. This is in line with Mbeyale and Songorwa (2008) who reported that restriction of the pastoralists to utilize grazing land in Mkomazi Game Reserve (MGR) was among the causes of power struggle which resulted into conflicts between MGR authority and pastoralists. Brocking and Homewood (1999) argue that power struggle between pastoralists and Conservation authority was due to the eviction of maasai from Mkomazi Game Reserve in 1998 which resulted into conflicts. Moreover, the findings concur with those of Mandel (1998) who contended that resource scarcity tend to lead to increased competition hence power struggles, and ultimately resource use conflicts.

Discussions with key informants further revealed that, power struggle between Village Governments (regulator) and pastoralists (user) were more pronounced in Sunya village than in other villages surrounding SULEDO VLFR. The plausible reason could be due to presence of good pasture land in Sunya village that attracts pastoralists from neighboring districts of Kilindi, Kongwa, Handeni and Simanjiro.

In Lengatei village, existence of power struggle between farmers (user) and Village Environmental committee (regulator) was revealed. The power struggle was due to land scarcity in the village which influences farmers to establish farms inside the forest reserve. The findings concur with what was reported by Kisoza (2006) who argued that power struggles resulted into resource use conflicts in Mkata plains were due to land scarcity for grazing and farming.

Moreover, Fig. 7 shows power struggle between Lengatei (regulator) and Olikitikiti villages (regulator) over forest boundaries as reported by 6.2% of the respondents (Table 6). Unclear forest boundaries in the forest between the two villages have created difficulties in forest management. Similar results were reported by Mayeta (2004) that unclear boundary between Kipengele Game Reserve and village area has resulted into power struggle between the village and Game Reserve Authorities hence causing resource use conflicts.

Furthermore, Fig. 7 shows the occurrence of power struggle between Village governments (regulator) and Village Environmental Committees (regulator) over the management of the forest due to differences in interest. The power struggle was more

pronounced in Lengatei village whereby the Village Environmental Committee was working hard in making sure that the forest is well managed, but the Village Government Leaders were allowing villagers to access the forest resources and establish farms in the forest as a way of maintaining their political positions. The findings are in line with those reported by Griffioen, (2005) and WRM, (2002) who reported about power struggles in Uluguru Mountains between village governments who would like to allocate forest land for farming (converting forest to banana plantations) and newly created village forest committees which would like to establish conservation management systems for those forests.

#### **4.3.5 Levels of power struggle between ZEC and the ten villages surrounding SULEDO VLFR**

Table 7 shows the levels of power struggle between ZEC and the ten villages surrounding SULEDO VLFR. In Sunya village 50% of the respondents reported that power struggle was very high while 30% reported high, and 15% reported low while 5% reported very low. In Laiseri village, 11.8% of the respondents reported very high power struggle while 41.2% reported high and 47.1% of the respondents reported low. Furthermore, in Lengatei village, the results showed that 36.8% of the respondents reported very high power struggle while 31.6% reported high and 26.3% reported low while 5.3% reported very low power struggle. The majority of the respondents in the study villages reported high level of power struggle between ZEC and the ten villages surrounding SULEDO VLFR namely Sunya, Asamatwa, Olgira, Lengatei, Lesoit, Olkitikiti, Engong'ongale Mтуру, Mesera and Laiseri.

**Table 7: Levels of power struggle between ZEC and the ten villages surrounding****SULEDO VLFR**

Levels	Name of Village			Total
	Sunya	Laiseri	Lengatei	
	F (%)	F (%)	F (%)	F (%)
Very high	10 (50)	2 (11.8)	7 (36.8)	19 (33.9)
High	6(30)	7 (41.2)	6 (31.6)	19(33.9)
Low	3 (15)	8 (47.1)	5 (26.3)	16 (3.6)
Very low	1 (5)	0 (0)	1 (5.3)	2 (28.6)
Total	20 (100)	17 (100)	19 (100)	56 (100)

**Key:** F=frequency

#### 4.4 Socio-Economic and Institutional Factors Underlying Power Struggle Between ZEC and the Ten villages Surrounding SULEDO VLFR

A logistic regression model was employed to determine factors underlying power struggle between ZEC and the ten villages surrounding SULEDO VLFR. The dependent variable was household heads perception on occurrence of power struggle between ZEC and the ten villages surrounding SULEDO VLFR, namely Sunya, Asamatwa, Olgira, Lengatei, Lesoit, Olkitikiti, Engong'ongale Mтуру, Mesera and Laiseri independent variables were age, Education level , Residence, Wealth , household size, farm size, Immigration ,distance from household to resource base, Membership in VEC and political involvement. Out of ten factors that have been analysed five factors have positive relationship to power struggle between ZEC and the ten villages surrounding SULEDO VLFR. The remaining five factors have negative relationship to power struggle between ZEC and the ten villages surrounding SULEDO VLFR (Table 8). The model has predicted correctly the cases by 80% with Chi-square value of 44.449. The high -2 Log Likelihood (68.687) indicates a high fit between the model and the data. The Nagelkerke R squared = 0.545 implying that 54.5% of observed variation in the power struggle between ZEC and the ten villages surrounding SULEDO VLFR is explained by independent variables in the model.

**Table 8: Socio-economic and Institutional Factors underlying power struggle between ZEC and the ten villages surrounding SULEDO VLFR**

Factors $X_i$	$\beta$	S.E.	Wald	df	Sig.	Exp(B)
Wealth category	2.450	0.83 2	8.675	1	0.003*	11.589

Immigration	1.809	0.91 2	3.937	1	0.047*	6.104
Distance to from household to resource base	0.617	0.68 1	0.821	1	0.365NS	1.854
Education level	-0.403	0.12 6	10.26 9	1	0.001*	0.668
Age	-0.086	0.03 9	4.977	1	0.026*	0.917
Farm size	-0.038	0.06 0	0.404	1	0.525NS	0.962
Residence duration	-0.010	0.02 9	0.131	1	0.717NS	0.990
Family size	-0.049	0.14 1	0.122	1	0.727NS	0.952
Political involvement	19.184	2.19 0	0.000	1	0.999NS	2.145
Membership in VEC	0.304	1.14 6	0.070	1	0.791NS	1.355
Constant	6.594	2.13 5	9.537	1	0.002*	730.965

A dependent variable: perception on the existence of power struggle between between ZEC and the ten villages surrounding SULEDO ( $Y_i$ ) Overall percentage of classification 80%, Model Chi-square 44.449, Nagelkerke R Square 0.545, -2 Log Likelihood 68.687,  $\text{Exp}(\beta)$  = Odds ratios (probability of success/probability of failure) SE =Standard error of the estimate. \*Statistically significant at 0.05 level of significance, NS = Statistically not significant at 0.05 level of significance, Sig.= Significance level,  $\text{Exp}(\beta) = e^\beta$  where  $e = 2.718$  and  $\beta$  = Regression coefficients in Table 8 above which stand for the odds ratio which is the ratio of probability of success to the probability of failure. Wald statistics  $(W) = \beta / (SE)^2$  and t-ratio =  $\beta / (SE)$  according to Norusis (1990) and Powers and Xie (2000).

#### **4.4.1 Socio-economic factors underlying power struggle between ZEC and the ten villages surrounding SULEDO VLFR**

##### **4.4.1.1 Socio-economic factors escalating power struggle between ZEC and the ten villages surrounding SULEDO VLFR**

###### **i. Wealth category**

Table 8 shows relative wealth of respondents to be positively correlated to power struggle with regression coefficient  $\beta = 2.450$  and statistically significant ( $p = 0.003$ ). This positive correlation implies that increase in wealth of an individual increases strategic power in access and use of forest resources hence increases power struggle between ZEC and the ten villages surrounding SULEDO VLFR. The strategic power is based on financial or ability to raise capital necessary for harvesting and transporting products to markets. Another plausible explanation is that SULEDO VLFR is dominated by individuals with strategic and institutional powers that provide opportunities for utilizing the forest resources for personal gains. Therefore under such situation there is a possibility that increasing wealth heterogeneity increases the likelihood of power struggle between ZEC and the ten villages surrounding SULEDO VLFR. Agrawal (2001) argued that, rich households benefit more than poor households from the community forest reserve. Similarly Mbeyale (2009) pointed out that, increasing wealth heterogeneity increase power imbalance due to income disparities among members of the community.

Table 9 shows wealth ranking for the study villages. The results revealed that in Sunya village 20% of respondents were rich 33.3% were under middle income category and 46.7% of respondents were poor. In Laiseri village 20% of respondents were rich, 30%

were under middle income category and 50% were poor. On the other hand, 10% of respondents in Lengatei village were rich, 40% were under middle income category and 50% were poor. The difference can be attributed to the fact that Sunya village is a good place for business compared to Laiseri and Lengatei villages as Sunya village has good roads hence attracting people from different districts including Kilindi and Kongwa. Most of the Sunya villagers are engaged in selling agricultural crops, cattles and local brews mainly during open auction days.

**Table 9: Relative wealth ranking**

<u>Income group</u>	<u>Wealth criteria by village</u>	<u>V Value in (%)</u>		
		<u>Sunya</u>	<u>Laiseri</u>	<u>Lengatei</u>



<b>Sunya Village</b>				
	<p>Have land of more than 20 acres            Have high income of more than Tshs 1 000 000 per month.            Have a good house made by bricks/blocks and iron sheets            Have more than 20 cattles, more than 10 goats and sheeps            Have kiosk/shop            Have at least a milling machine.</p>			
Rich	<p><b>Laiseri village</b>            Have land of more than 50 acres.            Have income of more than Tshs 1 000 000 per month.            Have good house made by bricks/blocks and iron sheets            Have more than 100 cattles, more than 100 goats and more than 50 sheeps.            Have a shop, a tractor, have at least 5 pairs of ox-cuts.            Have at least a milling machine</p>	20	20	10
	<p><b>Lengatei village</b>            Have land more than 20 acres. Have shop. Have more than 50 cattles</p>			
Middle	<p><b>Sunya village</b>            Have land between 1 and 20 acres            Have income between Tshs 250 000 and 1 000 000 per year            Have cattles between 1 and 20, goats and sheeps between 1 and 9            Have kiosk/shop</p>			
	<p><b>Laiseri village</b>            Have land between 5 and 49 acres            Have income between Tshs 250 000 and 1 000 000 per year,            Have cattles between 6 and 99, goats between 5 and 49 and sheeps between 10 and 99. Have pairs of ox-cuts between 1 and 2</p>	33.3	30	40
	<p><b>Lengatei village</b>            Have land between 5 and 19 acres. Have cattle between 1- and 19 and 1 small shop.</p>			
	<p><b>Sunya village</b>            Have no land for crop production            Have house made of muddy walls and grass            Have income of less than Tshs 250 000 per month            Have no cattle, goats or sheeps            Have no kiosk/shop as other source of income</p>			
Poor	<p><b>Laiseri village</b>            Have land between 0 and 4 acres            Have no cattles, goats and sheeps. No ox cuts</p>	46.7	50	50
	<p><b>Lengetei village</b>            No shop, no cattles, have land between 0 and 4 acres</p>			
<b>Total</b>		<b>100</b>	<b>100</b>	<b>100</b>

## ii. Immigration

Table 8 shows that immigration was positively correlated to power struggle between ZEC and the ten villages surrounding SULEDO VLFR with regression coefficient  $\beta = 1.809$  and statistically significant at ( $p=0.047$ ). This indicates that the likelihood

perception on power struggle between ZEC and the ten villages increases by a factor of 6.104 for every unit change in this variable. This indicates that immigrants tend to increase the village population consequently increases power struggle between ZEC and the ten villages surrounding SULEDO VLFR. This is because increase in population lead to increase pressure on farming lands resulting into encroachment to the Forest Reserve. Moreover, large herd owners tend to migrate to the area in time of pasture scarcity. This practice tends to increase pressure on forest resources. Herlocker (1999) argued that the pastoralists have for generations practised herd mobility which increase immigrants who tend to increase village population as well as power struggles in forest management resulting into forest resource-use conflicts. Galvin *et al.* (2001) reported high out migration of pastoralists from a drought prone Kakesio village into Mkata plain in Kilosa district consequently increased pressure on forest resources in the area.

The findings also concur with the report by WRI and UNEP (1992), which argued that increased demand for forest resources, which emanates from increased human population caused by increase of immigration to an area, has made forest resources use in rural areas unsustainable. McNeely *et al.* (1995) argued further that increased population growth due to immigration is strongly contributes to forest clearance at least in the tropics. Furthermore, Borrini-Feyerabend (1997) reported migration to be one of the main contributing factors to population dynamics and subsequently to power struggles and consequently forest resource use conflicts. Mbonile (2005) argue that migration has led to the convergence of pastoralists and farmers and to rapid population increases of both human beings and livestock in Pangani River Basin hence creating

power struggle between villagers and Pangani River Basin Authorities over utilization of natural resources.

### **iii. Distance to resource base**

Table 8 shows distance from household to resource base as positively correlated to power struggle between ZEC and ten villages surrounding SULEDO VLFR. Also with regression coefficient  $\beta = 0.617$  and multiplicative factor of 1.854, but not statistically significant ( $p = 0.365$ ) with power struggle between ZEC and the ten villages surrounding SULEDO VLFR. This implies that physical proximity of the communities to SULEDO VLFR increases occurrence of power struggle between ZEC and ten villages surrounding SULEDO VLFR, due to closeness to the resource base, hence more frequent visits to exploit the resources. Mayeta (2004) find similar results that reduction of distance from the reserve to homesteads increases the number of cases related to forest destruction in Kipengele game reserve.

Table 10 also shows that 3.3% of respondents in Laiseri village reside in less than 20m from SULEDO VLFR while 16.7% and 3.3% of respondents in Lengatei and Sunya villages respectively reside between 20 and 500m from SULEDO VLFR hence this influence them to have frequent visit into forest reserve for collection of various forest products. Table 10 also shows that 26.7% and 66.7% of respondents in Sunya and Lengatei villages respectively reside between 501m and 1km from SULEDO VLFR while 70%, 96.7% and 16.7% of respondents in Sunya, Laiseri and Lengatei villages respectively reside in more than 1km from SULEDO VLFR, therefore have less access to the forest resources.

**Table 10: Distance from household to resource base**

Distance	Name of Village			Total
	Sunya F (%)	Laiserri F (%)	Lengatei F (%)	
Less than 20 m	0(0)	1(3.3)	0(0)	1(1.1)
20-500m	1(3.3)	0(0)	5(16.7)	6(6.7)
501m-1km	8(26.7)	0(0)	20(66.7)	28(31.1)
More than 1km	21(70)	29(96.7)	5(16.7)	55(61.1)
Total	30(100)	30(100)	30(100)	90(100)

**Key:** F=frequency

#### **4.4.1.2 Socio-economic factors likely to reduce power struggle between ZEC and ten villages surrounding SULEDO VLFR**

##### **i. Education level of respondents**

Table 8 shows that the number of years spent in school was negatively correlated with power struggle between ZEC and ten villages surrounding SULEDO VLFR, with a regression coefficient  $\beta = -0.403$  and statistically significant ( $p=0.001$ ), with a multiplicative factor of 0.668. This implies that increasing a year spent in school is likely to decrease likelihood of occurrences of power struggles. Level of education tends to create awareness, self-reliance, stimulate self-confidence, motivation and positive attitude. Increase in level of education also increases the willingness of local communities to participate in forest resource conservation. Involvement of local communities in conservation and management of forest resources reduces the chances of power struggles in forest resources management because the practice imparts a sense of ownership and benefit sharing at the local level. This in turn improves the relationship between local communities and the forest resource conservation and management authorities at the local level. Mayeta (2004) reported that increase in the

level of education also increases options of respondents to meet their household needs and hence reduce power struggles and consequently resource use conflicts.

Table 11 shows education level of the respondents, whereby 43.3%, 26.7% and 6.7% of respondents in Sunya, Laiseri and Lengatei villages respectively had no formal education, whereby 50%, 63.3% and 83.3% of the respondents in Sunya, Laiseri and Lengatei villages respectively acquired primary school education level while 6.7%, 10% and 10% of the respondents got secondary school and college education. The results indicated that a larger number of people in the study area are rather educated, hence they are aware about sustainable forest conservation hence reducing occurrence of power struggle between ZEC and the ten villages surrounding SULEDO VLFR. Katani (1999) reported that an increase in education level increases the level of awareness and thereby creating positive attitudes, values and motivating people to manage forest resources sustainably. Mbwambo (2000) argued that education has a direct influence on people's participation in natural resources management and promoted sustainable utilization of the natural resources in Udzungwa Mountains.

**Table 11: Education level of respondents (years spent in school)**

Years spent in school	Name of village			Total
	Sunya F(%)	Laiseri F(%)	Lengatei F(%)	
0	13(43.3)	8(26.7)	2(6.7)	23(25.6)
1-7	15(50)	19(63.3)	25(83.3)	59(65.6)

8-14	2(6.7)	3(10)	3(10)	8(8.9)
Total	30(1000)	30(100)	30(100)	90(100)

**Key:** F=frequency

## ii. Age of respondents

Table 8 shows that age of the respondent in years has a negative regression coefficient ( $\beta = -0.086$ ) and statistically significant ( $p = 0.026$ ). This implies that increase in age of a respondent reduces the incidence of power struggle between ZEC and the ten villages surrounding SULEDO VLFR, because older persons are assumed to have much wisdom related to forest resource use and in resolving power struggles through reconciliation committees. Usually power struggle occur between elders and young people as young people prefer harvesting forest resources including building poles for construction of their houses. Elders on the other hand do insist on conservation of the forest resources and in some situations urge young people to build their houses using modern and expensive materials. Kajembe and Mwihomeke (2001) in their study in Handeni District, Tanzania, reported that young generation always argued that it is unfair for anyone to prohibit them from obtaining poles because almost all homesteads in the villages started off being of poles and some built brick houses later as they became more settled. This struggle was caused by elders imposing what was perceived to be an “invented” tradition” of compelling the young generation to start from brick houses while most of them (i.e. the elders) started off with pole and mud structures. It is clear that even though the “invented” tradition has conservation rationality, the youth tend to object it.

Table 12 shows age of the respondents in Sunya, Laiseri and Lengatei villages. The results revealed that 6.7%, 3.3% and 3.3% of the respondents in Sunya, Laiseri and Lengatei villages their age was less than 30 years while 36.7%, 73.3% and 80% of the respondents their age range between 30 and 45 years. Moreover, 26.7%, 23.3% and 13.3% of the respondents in Sunya, Laiseri and Lengatei villages their age range between 46 and 60 years while 26.7% and 3.3% of the respondents in Sunya and Lengatei villages their ages was more than 60 years. The results show that number of individuals with less than 60 years is higher as compared to elders who have more than 60 years, which indicate likelihood of more incidences of power struggle between ZEC and ten villages surrounding SULEDO VLFR.

**Table 12: Age of respondents**

Age of respondent	Name of Village			Total F (%)
	Sunya F (%)	Laiseri F (%)	Lengatei F (%)	
Less than 30	2(6.7)	1(3.3)	1(3.3)	4(4.4)
30-45	11(36.7)	22(73.3)	24(80)	57(63.3)
46-60	8(26.7)	7(23.3)	4(13.3)	19(21.1)
More than 60	9(26.7)	0(0)	1(3.3)	10(11.1)
Total	30(100)	30(100)	30(100)	90(100)

**Key:** F=frequency

### iii. Farm size

Table 8 further shows that farm size was negatively correlated  $\beta = -0.038$  with power struggle between ZEC and the ten villages surrounding SULEDO VLFR and not statistically significant ( $p=0.525$ ). Farm size was assumed to reduce incidences of power struggle between ZEC and the ten villages surrounding SULEDO VLFR. The possible explanation is that when an individual own enough land resources he/she will

be able to meet his/ her livelihood by allocating it for different uses and reducing dependency on forest resources than an individual who is not having enough land. During discussions with key informants it was revealed that individuals involved in power struggles were the ones who owned less than 8 hectares of land resources.

Table 13 shows that 3.3% of the respondents in Sunya village, 6.7% of the respondents in Laiseri village and 20% of the respondents in Lengatei village have no land, 20%, 16.7% and 20% of the respondents in Sunya Laiseri and Lengatei villages respectively have land between 1 and 4 hectares. Also 26.7% of respondents in Sunya village, 36.7% in Laiseri village and 20% in Lengatei village were having a land between 4 and 8 hectares. Moreover, 23.3%, 13.3%, 16.7% of respondents in Sunya, Laiseri and Lengatei villages respectively found to have land between 8 and 12 hectares. Furthermore, 26.7% 26.7% and 23.3% of respondents in Sunya, Lengatei and Laiseri villages respectively, found to have land of more or equal to 12 hectares. FAO (2000) argued that land scarcity or ambiguous property rights contribute to grievances and power struggle, this is when forests contain valuable resources.

**Table 13: Farm size**

Farm size (ha)	Name of Village			Total F (%)
	Sunya F (%)	Laiseri F (%)	Lengatei F (%)	



0	1(3.3)	2(6.7)	6(20)	9(10)
1-4	6(20)	5(16.7)	6(20)	17(18.9)
4-8	8(26.7)	11(36.7)	6(20)	25(27.8)
8-12	7(23.3)	4(13.3)	5(16.7)	16(17.8)
>=12	8(26.7)	8(26.7)	7(23.3)	23(25.6)
Total	30(100)	30(100)	30(100)	90(100)

**Key:** F=frequency

#### iv. Duration of Residence

Results in Table 8 indicated that residence duration of a respondent has a negative regression coefficient  $\beta = -0.010$  to power struggle between ZEC and ten villages forming SULEDO VLFR, but not statistically significant ( $p= 0.717$ ). This implies that increase in duration of residence in years reduce the odd ratios of power struggles by a factor of 0.990. This is due to fact that when a person stays in a particular place for a long time is assumed to have accumulated enough land resources to meet his/her livelihoods than an immigrant to the area. This then reduces power struggle between ZEC and the ten villages surrounding SULEDO VLFR. In addition, the more an individual stays in the area is likely to be involved in forest resources conservation and resolving power struggle between ZEC and the ten villages surrounding SULEDO VLFR. Table 14 shows residence duration in Sunya, Laiseri and Lengatei villages where by 80%, 40% and 80% of respondents in Sunya, Laiseri and Lengatei villages respectively had more than 30 years of staying in the study villages.

**Table 14: Duration of residence**

	Name of Village			Total
	Sunya	Laiseri	Lengatei	
Residence	F(%)	F(%)	F(%)	F(%)
Less than 15	2(6.7)	4(13.3)	1(3.3)	7(7.8)

15-30	4(13.3)	14(46.7)	5(16.7)	23(25.6)
More than 30	24(80)	12(40)	24(80)	60(66.7)
Total	30(100)	30(100)	30(100)	90(100)

**Key:** F=frequency

#### **v. Household size**

Table 8 indicates that household size is negatively correlated with power struggle between ZEC and ten villages surrounding SULEDO VLFR, with a negative regression coefficient  $\beta = -0.049$  and multiplicative factor of 0.952. However, not statistically significant ( $p=0.727$ ). The negative regression value indicates that an increase in household size lead to reduction of power struggle between ZEC and ten villages surrounding SULEDO VLFR. It was expected that household size would increase likelihood of power struggle between ZEC and ten villages surrounding SULEDO VLFR. This is because larger number of members in a household tends to increase demand of the forest resources. However, a plausible explanation for this is that bigger household size is self sufficient due to possibilities of diversification of livelihood activities as compared to small household size which depends on one activity. The study found households which receive remittances from family members who are living outside the villages.

Table 15 shows the household size of respondents in Sunya, Laiseri and Lengatei whereby 6.7% of the respondents in Laiseri village had household size between 1 and 2 members while 13.3%, 6.7% and 3.3% of the respondents in Sunya, Laiseri and Lengatei villages had household size between 3 and 4 members. Moreover 26.7%, 33.3% and 33.3% of the respondents in Sunya, Laiseri and Lengatei villages respectively had household size between 5 and 6. Furthermore in Sunya, Laiseri and

Lengatei villages 60%, 60% and 56.7% of the respondents respectively had household size of more than 6 members. Similarly, Kisoza (2006) found negative correlation of household size with power struggles in Mkata plain, whereby family with many members were engaged in wage labour rather than depending on natural resources.

**Table 15: Household size**

Household size	Name of Village			Total F (%)
	Sunya F (%)	Laiserri F (%)	Lengatei F (%)	
1-2	0(0)	0(0)	2(6.7)	2(2.2)
3-4	4(13.3)	2(6.7)	1(3.3)	7(7.8)
5-6	8(26.7)	10(33.3)	10(33.3)	28(31.1)
>6	18(60)	18(60)	17(56.7)	53(58.9)
Total	30(100)	30(100)	30(100)	90(100)

**Key:** F=frequency

#### **4.4.2 Institutional factors underlying power struggle between ZEC and the ten villages surrounding SULEDO VLFR**

##### **i. Involvement in Politics**

Table 8 shows that involvement of one member of household in politics has positive correlation  $\beta = 19.184$  with regard to power struggle between ZEC and ten villages surrounding SULEDO VLFR, though not statistically significant ( $p=0.999$ ). Involvement in politics has a multiplicative factor of 2.145. This implies that increase in one member in the household dealing with political activities tend to increase access to the forest resources, because politician tend to work hard in order to full fill their promises to people. Also politicians tend to increase power struggle between ZEC and the ten villages surrounding SULEDO VLFR due to the fact that they fear to loose their

position in the coming years of election if they will limit people to access the forest resources. Hence this accelerates forest degradation and deforestation.

## **ii. Membership in VEC**

Table 8 shows that membership in VEC is positively correlated  $\beta = 0.304$  with power struggle between ZEC and ten villages surrounding SULEDO VLFR. Membership in VEC has a multiplicative factor of 1.355 and not statistically significant ( $p=0.791$ ). This implies that increase in one member of household in VEC tend to increases power struggles between ZEC and ten villages surrounding SULEDO VLFR. The plausible argument is that memberships in VEC also give committee members institutional power on access to forest resources in SULEDO VLFR. Village Environmental Committee members were given direct authority on forest management and utilization therefore when they need forest resources it is easy for them to access thus increases power struggle between ZEC and the ten villages surrounding SULEDO VLFR. During discussions with key informants it was revealed that some of members in VECs were using their institutional power to harvest logs in forest for their own benefit. This increases power struggle between ZEC and the ten villages surrounding SULEDO VLFR.

## **4.5 Forest Resource Use Conflicts as a Result of Existing Power Struggles**

#### 4.5.1 Perception on forest resource use conflicts between ZEC and the ten villages surrounding SULEDO VLFR

Table 16 indicates occurrence of forest resource-use conflicts in the study area. The dominant forest resource use conflict identified was between ZEC (regulators) and the ten villages namely: Sunya, Asamatwa, Olgira, Lengatei, Lesoit, Olkitikiti, Engong'ongale Mтуру, Mesera and Laiseri Villages (users). Results in Sunya village revealed highest percentage of respondents who indicated the presence of forest resource-use conflicts (96.7%) as compared to Laiseri village (70%) and Lengatei village (63.3%). The results further show that 3.9% of respondents in Sunya village 30% in Laiseri village and 36.7% in Lengatei village perceived no forest resources use conflicts. The difference is possibly a result of unequal distribution of income from pilot timber harvesting. This is due to the fact that the pilot harvesting started in the forest area owned by Sunya village and villagers were expecting to get a lot of money from the harvesting, but their expectations were not fulfilled.

**Table 16: Responses distribution on occurrence of forest resource use conflicts between ZEC and the ten villages surrounding SULEDO VLFR**

Response	Name of Village			Total F (%)
	Sunya F (%)	Laiseri F (%)	Lengatei F (%)	
No	1(3.9)	9 (30)	11 (36.7)	21(23.3)
Yes	29 (96.7)	21 (70)	19 (63.3)	69(76.7)
Total	30 (100)	30 (100)	30 (100)	90 (100.0)

**Key:** F=frequency

#### **4.5.2 Extent of forest resource use conflict between ZEC and the ten villages surrounding SULEDO VLFR**

Table 17 shows that the extent of forest resource use conflicts in the study area varies from disagreement between groups over forest resource access to violent clashes between groups over forest resource access, ownership rights and use. The conflicts in the study area were dominated by disagreements between the regulators (ZEC) and users (ten villages surrounding SULEDO VLFR). This was reported in Sunya, Laiser, and Lengatei villages by 33.3%, 85.7% and 75% of respondents respectively. Disagreements were observed when the villages had refused to receive a share from plot harvesting, because the share was not matching with what had been expected.

Violent clashes were reported in Sunya, Laiser and Lengatei villages by 66.7%, 14.3%, and 25% of respondents respectively. Violent clashes were observed in October 2010 in Sunya village when ZEC was stopped to continue harvesting the forest area of Sunya village. The situation came up after the villagers were not satisfied with the share they got from the pilot harvesting as large share went to ZEC. This compares well with what was reported by FAO (2000) that forest resource use conflicts can emerge gradually and steadily, or develop rapidly in response to a few significant events, as differences increase and intensify, conflicts become manifest and violent,

expanding into a full public issue that cannot be avoided. Similarly, Suliman (1999) argued that the extent of conflict may also vary from confusion and frustration to violence among members of a community over poorly communicated development policies.

**Table 17: Extent of forest resource use conflicts between ZEC and the ten villages surrounding SULEDO VLFR**

Level	Name of village			Total F (%)
	Sunya F (%)	Laiseri F (%)	Lengatei F (%)	
Violent clashes	16(66.7)	1(14.3)	2(25)	19(48.7)
Disagreements/latent	8(33.3)	6(85.7)	6(75)	20(51.3)
Total	24(100)	7(100%)	8(100)	39(100)

**Key:** F=frequency

#### 4.5.3 Effects of forest resource use conflicts

Main effect identified during focus group discussion was that ZEC has lost the trust from the villagers. It was revealed that communities in Sunya, Asamatwa, Olgira, Lengatei, Lesoit, Olkitikiti, Engong'ongale Mтуру, Mesera and Laiseri villages are no longer trusting ZEC, whereby in March 2011 a ZEC member from Sunya village was sacked/fired by the villagers through Village General Assembly. Moreover, it was revealed that villagers have lost interest on forest conservation. During discussions with key informants it was revealed that Sunya and Lengatei villages have proposed part of their forest area to be cleared for farming so as everybody can benefit.

Furthermore, increase in illegal activities in the forest was revealed during discussions with key informants as a major recent outcome of the conflicts between ZEC and the

ten villages surrounding SULEDO VLFR. Illegal activities including overgrazing, encroachment and illegal harvesting of logs had increased in the reserve, due to unequal sharing of benefits from the forest. Moreover benefits from harvesting does not real contribute to their household income. The findings are supported by the study by Mayeta (2004) who reported about resource use conflicts in Kipengele Game Reserve which resulted from the fact that conservation authorities lost trust from the communities around Kipengele Game Reserve.



## CHAPTER FIVE

### 5.0 CONCLUSION AND RECOMMENDATIONS

#### 5.1 Conclusion

It is concluded from the study that, a number of stakeholders are involved in the management and utilization of SULEDO VLFR. Almost half of stakeholders were facilitators indicating that the forest is valuable and hence attracting different stakeholders to facilitate its management. Other stakeholders were regulators and users. Interactions among stakeholders showed that position and strength of interactions varied significantly.

Three power categories namely strategic, institutional and structural were identified in SULEDO VLFR. In general, strategic power was dominant in the management and utilization of the reserve. Differences in power among stakeholders led to power struggles which consequently resulted into forest resource use conflicts.

Forest resources in the study area were highly contested with power struggles. Dominant power struggle was between ZEC and the ten villages surrounding SULEDO VLFR, centered on the utilization of forest resources. Power imbalances between stakeholders with regard to access and use of forest resources and unequal benefits distribution among stakeholders were the core cause of the existing power struggles in SULEDO VLFR. Another power struggle seemingly prevailing was between Village

Governments and Village Environmental Committees mainly caused by misunderstandings and lack of accountability.

Socio-economic factors found to significantly escalating the power struggle between ZEC and the ten villages surrounding SULEDO VLFR include wealth category and immigration while distance from homesteads to resource base found to escalating the power struggle but not significantly. Socio-economic factors found to significantly reducing the power struggle between ZEC and ten villages surrounding SULEDO VLFR include age and education level while residence duration, household size and farm size were reducing the power struggle but not statistically significant. Moreover the institutional factors found to escalate power struggle between ZEC and the ten villages surrounding SULEDO VLFR but not statistically significant were membership in VEC and political involvement.

Forest resource use conflicts were due to disagreement among the stakeholders. The forest resource use conflicts involved ZEC and the ten villages surrounding SULEDO VLFR. Generally speaking SULEDO VLFR remains to be complex and contested case of CBFM, comprised by different stakeholders underlined by power struggles and consequently resource use conflicts.

## **5.2 Recommendations**

### **5.2.1 The need to improve communication among stakeholders in the study area**

There is a need to improve communication among different stakeholders in SULEDO VLFR. This will enable different stakeholders to know and understand the concerns of

each other. Such communication is particularly important in multiple -use and multi-user resource system existing in SULEDO VLFR.

### **5.2.2 The need to improve transparency and accountability on forest management and utilization**

There is a need to improve transparency and accountability on forest management and utilization. That is every stakeholder has to be informed on how things are unfolding in SULEDO VLFR. A mechanism must be put in place to raise awareness and the mechanism should be gender sensitive by involving both men and women.

### **5.2.3 The need to carry out more studies on power struggles and resource use conflicts**

There is a need to carry out more studies on power struggles and resource use conflicts in SULEDO VLFR as these are likely to escalate with the increase of harvesting and hence the coming of more strategically positioned stakeholders specifically timber traders.

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## APPENDICES

### **Appendix 1: Checklist used for guiding Participatory Rural Appraisal exercises**

#### **Participants for the PRA**

1. Members from village government for selected villages.
2. Members of the village Environmental Committee (VEC).
3. Members of the Zonal Environmental Committee (ZEC).
4. Prominent people in the village (old people).
5. Youth.

#### **Issue to be discussed in PRA**

1. Mapping of the resource available in the study area.
2. Wealth ranking through establishment of the criteria for wealth.
3. Identification of stakeholders and actors and their role or interest on use and Management of forest resources.
4. Identification of type of power which is dominant in Management and utilization of forest resource.
5. Identification of various sources of their power.
6. Identification of types of forest resource use conflict that exists.
7. Identification of institutional factors underlying forest resource use conflicts.
8. Identification of socio economic factors underlying forest resource use conflicts.
9. Identification of outcome of forest resource use conflicts.
10. Dominant power type among stakeholder in SULEDO VLFR



Stakeholders	Strategic power (1)	Institutional power (2)	Structural power (3)
Key Users			
Key Regulators			
Key Facilitators			

## Appendix 2: Questionnaire for Households

### QUESTIONNAIRE FOR HOUSEHOLDS

Division.....

Ward.....

Village.....

Date of interview.....

Name of enumerator.....

#### 1. Basic information of respondent

1.1 Name of respondent.....

1.2 Age of respondent..... (years)

1.3 Sex of respondent.....

1.4 Marital status:

1: married, 2: widow, 3: divorced, 4: never married

1.6 Education:

1: No education, 2: Primary, 3: Secondary, 4: Adult education, 5: tertiary

1.7 Religion:

1: Christian, 2: Muslim, 3: Pagan, 4: others

Ethnicity and tribe: Are you native of this area or born in this area?

1: Yes, 2: No

If the answer is no in question .... When did you come to this area?.....

1.8 Social capital:

How many household members are members of the village council.....

How many household members are in a committee under the village council?.....

How many household members hold position in a political party?.....

How many members hold a civil society position?

Other specify.....

1.9 Wealth category of respondent

1: Rich; 2: Medium 3: Poor

1.10 Household composition

Age group	Males	Females
> 10 years		
10 to 18 years		
19 to 60 years		
> 60 years		

**1.11 Education status:**

No. of adult household members with no education.....

No. of adult household members with adult education, only.....

No. of children below schooling age.....

No. of household members undergoing or completed primary school only.....

No. of household members undergoing or completed secondary school only.....

No. of household members undergoing or completed college or University education....

What is your average income per annum in Tsh?.....

**1.12 Socio economic information**

What are the major sources of household income

1: Farming 2: Livestock keeping, 3: Fishing, 4: Charcoal making, 5: Others

specify.....

Do you own the house you live in?

1: Yes, 2: No

1.13 Roof materials

1: Iron sheets, 2: Well-maintained thatched grass, 3: Dilapidated thatched grass

1.14 Wall materials

1: Burnt bricks with plaster, 2: Burnt bricks without plaster, 3: Mud bricks with plaster, 4: Mud bricks without plaster, 5: Well constructed poles and mud, 6: Poorly constructed/ maintained, 7: Other specify.....

1.15 Energy for cooking:

1: Electricity, 2: Kerosene, 3: Biogas, 4: Charcoal, 5: firewood, 6: other specify

1.16 What is your main economic activity?

1: Farming 2: Livestock keeping 3: Selling forest product, 4: other specify.....

1.17 Do you own land in this village? Yes/No

If yes how many acres of land do you own?.....

1.18 How did you acquire the land you own?

1: Bought, 2: Rented, 3: Inherited, 4: allocated by government 5: Other specify.....

If land is bought how much do you pay per acre (TShs).....

If land is rented how much do you pay per acre (TShs).....

1.19 How much land do you own for crop production.....

Is the land owned enough for crop production? 1: Yes, 2: No

If not, why?

1.20 Does the immigration of other ethnic groups affect the farm/ land holding you previously? had traditionally owned? 1: Yes, 2: No

If yes how do you handle the situation?.....

1.21 How close to SULEDO VLFR in straight line, your primary farming area and household situated?

	More than 1km	501m-1km	20m-500m	Less than 20m
Distance from household				
From primary farming area				

1.2.2 How long time does it take to walk from your house to the nearest PFM forest?

1) Half hour (2) One hour (3) Two hours (4) Others please specify.....

1.2.3 Do you own livestock?

(1) Yes (2) No

1.2.4 If yes in Qn 1.2.2 above what categories of livestock your owning

Type of animal	Number

1.2.5 Where do you graze your livestock?

1. Communal grazing lands
2. Fallow lands
3. Harvested field
4. Established pastures
5. Privately owned pastures

1.2.6 Is the available grazing land adequate?

(1) Yes (2) No

1.2.7 If no in Qn 1.2.5 what is the main reason?

1) Too many animals 2) Encroachment by farmers 3) others specify.....

**2. Stakeholders in forest resources utilization**

2.1. Who are the stakeholders involved in the forest products utilization in the community adjacent to the forest reserve?

i.....ii.....iii.....iv.....

**3. Power struggles**

3.1 Do you access and use forest resource? Yes/No

If answer is yes in Qn 3.1 above do you pay for use of forest resources? Yes/No

If answer is Yes in Qn 3.1 above, which resources are you paying for?

3.2 Do you think all villagers access and use forest product? Yes/No

If the answer is No in Qn 3.2 above do you think what group of people has more access than others?

(i) Rich (ii) Poor (iii) VRC members (iv) Men (v) Women (vi) Others  
specify.....  
.....  
.....

3.3 Which group is less access?

(i)Rich (ii) Poor (iii) VRC members (iv) Men (v) Women (vi) Others  
specify.....  
.....  
.....

3.4 What are characteristics of each group of people you mentioned above?

(i) Richness (ii) Political network (iii) Many headed household (iv) Others  
specify.....

3.5 Are both men and women having equal chance in accessing forest product? Yes/No

If no in 3.4 above explain why

3.6 Who make decisions on the use of the available forest resources?

1: Village government, 2: Environmental conservation committees, 3: District authority

4: Others specify.....

3.7 What are the uses of available forest resource in your village?

3.8 Is there power struggles in the management of SVLFR? Yes/ No

If yes why.....

Who are involved in these power struggles?

(i)..... (ii)..... (iv).....

3.10 If yes in Qn 3.6 above what is your perception on the existence of power struggles

(i) Low ii) Very low iii) High iv) Very high

Give reasons for each answer.....

**4 Forest resources use conflicts**

4.1 Are you involved in forest resource management? Yes/No

4.2 There are any resource use conflicts between forest resource users? Yes/ No

If the answer is Yes in Qn 4.2 above who are involved in resource use conflict?

(i).....(ii).....(iii).....

4.3 When did you first experience the resource use conflicts in this village?

4.4 During which seasons of the year the forest resource conflict intensify?

4.5 What is the nature of the conflicts?

Violent clashes/ Animosity/ Disagreements/ Arguments/ Tensions/Others

4.6 What are the effects of forest resource use conflict you have experienced?

None/ People were killed/ Crops were slashed/ others (specify)

4.7 What are the main factors driving forest resource use conflicts

1: Increase human population, 2: Land scarcity for crop and livestock production

3: Farm are located near the forest, 4: The village itself is very close to the forest

5: Others specify.....

.....

4.8 What are the causes of existing forest resource use conflicts in the area?

.....

4.9 What are the existing externally sponsored institution in the area?

1: Village natural resources Committees, 2: Village government, 3: District authority,

4: ORGUT

4.10 What are the existing internally sponsored institutions in the area?

1: Village natural resources committees, 2: Village government, 3: District authority, 4:

ORGUT

### **Appendix 3: Checklists for key informants**

#### **Key informants**

- A. Village leaders, users (traders, farmers and pastoralists).
- B. Representatives of NGOs and CBOs working in SULEDO VLFR.
- C. Forest and Beekeeping officials, VEC, and ZEC

#### **Issues to be discussed and collected**

##### 1. General information

- a. Date.....Place of interview.....
- b. Name .....Sex.....
- c. Position.....

2. Who is the owner of forest reserves and what is the current management regime?

3. What is your main interests and role in SULEDO VLFR?

4. What other stakeholders having the same interests and roles?

5. What other stakeholders with their interests and roles?

6. What different power relations categories existing?

7. What are the main sources of power?

8. Do you access and use forest resource? Yes/ No

9. Which rules and regulations governing access and use of forest resources in the present?

10. What are the factors that cause power struggles?

11. Do devolution of power cause power struggle? (Yes/no), if yes reasons give reasons.

12. What are the commonly reported resource use conflicts?

13. What are the impacts of the resource use conflicts on the resource management?

**Appendix 4: Social Network Analysis Tool**

1: Name of the Organization.....

2: Mission Statement and Objectives of Organization

Mission:

.....  
 .....  
 ...

Objective:

.....  
 .....

3. Type of Organization (please tick ✓)

Local NGO	
National NGO	
International NGO	
International Agency (donor/aid etc.)	
Government Ministry	
Government department	
District council	
Academic	
Private	
Civil Society Organization	
Individual	
Any other (please specify)	

4: What is the approximate total/annual budget of your organization?

Average Annual Budget	
-----------------------	--

5: What is the main source of fund for the organization?

Source of funds	
-----------------	--

6: What administrative and political scales do your organization works? (Please tick ✓)

International	
National	
Regional	
District	
Local (villages or specific forest, fields, etc.)	



7: What is the region of influence of your organization? (Please tick✓)

National level	
Regional level	
District level	
Village level	

8: How do you rate the objectives/priorities of your organization to ensure environmental sustainability: Please rank according to importance priority you give.

Forest Protection	
Forest regeneration	
New plantation	
Climate moderation	
Watershed protection	
Integrated NRM	
Restoration of environmental degradation and pollution control	
Biodiversity conservation	
Forest and range management	
Sustainable use of natural resources	
Compensation of environmental losses	
Any other (pl. specify)	

9: Please indicate the important factors for decision making in your organization relating to forest resource management. (0=No importance, 5=highest importance)

<i>Influential conditions</i>	0	1	2	3	4	5
Environmental problems						
Socio-economic problems						
Socio-cultural problems						
Security Issues						
Political Issues						
Political instability						
Your donor's strategy						
Local customs and traditions						
Politics in your organization/ country						
Sectoral policies E.g. Forest Policy, Water Policy etc						
Agreements/coordination with other organization						
Knowledge produced by research						
Any other						



Name of organization	13. How strong is your organization's relationship with this organization in conservation of SULEDO VLFR?	14. What type of relationship does your organization have with this organization? (Check all that apply)	15. Has your relationship with this organization become stronger, weaker or stayed the same since 1994? (Check one)	16. If your relationship with this organization become stronger or remain the same what is the reason? (Check all that apply)	17. Would you recommend others to work with this organization on competitiveness?
	1= No relationship 2= Occasionally exchange information 3= Frequently exchange information. 4= Work together on projects. 5= Have a written contract and/or memorandum of understanding	We receive training We provide training We receive materials Eg planting material We provide materials Eg planting	We receive publications We provide publications Not Applicable Stronger Weaker	Stayed the same We present our activities to them as country institution set up	We receive fund We provide fund Yes No Don't know

nal set up of the country

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**18. Please list any organizations/Institutions/Groups/Individual working in Conservation and Management of SULEDO VLFR**

<b>Organizations/Institutions/Groups/Individual</b>	<b>Contact information</b>

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Name of the Respondent: .....

Position in the Organization:.....

Address: .....

Phone Number.....

E-mail Address: .....

**Name and contact of the researcher**

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Thanks a lot for your co-operation.

**Appendix 5: Summary of method technique to be used for each objective**

No	Specific Objective	Data to be collected	Method of Data collection	Technique method of data analysis
1	To identify main stakeholders, their roles and interactions in management of SULEDO Village Land Forest Reserve.	Different Stakeholders in forest resources management, their roles and interactions.	PRA, Participant observation, Household questionnaires (Structured questionnaires), Semi structured and unstructured interviews	Descriptive statistical analysis a Content analysis, and Stakeholders Network Analysis
2	To identify and assess types of power and power struggles underlying forest utilization and management in SULEDO VLFR.	Power categories, , dominant power which exists, existing power struggles and dominant power struggle	PRA, Participant observation, Pair wise ranking and Household questionnaires, (Structured interview), Semi structured and unstructured interviews	Descriptive statistical analysis Content analysis, and Stakeholders Network Analysis
3	To assess socio-economic and institutional factors underlying the dominant power struggle.	Socio-economic and institutional factors influencing dominant power struggle.	PRA, Participant observation, and Household questionnaires(Structured interview), Semi structured and unstructured interviews	Content analysis and logistic regression model.
4	To asses forest use conflicts as a results of existing power struggles.	Perception on the occurrence of forest use conflicts as a results of existing power struggles, extent and effect of forest use conflicts.	PRA, Household questionnaires, (Structured interview)	Content analysis Descriptive statistical analysis