

**FOREST RESOURCE USE CONFLICTS AS A CONSEQUENCE OF PSEUDO-  
DEVOLUTION OF POWER: A CASE STUDY OF PUGU AND KAZIMZUMBWI  
FOREST RESERVES, TANZANIA**

**BY**

**ZAINABU SHABANI**

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



## ABSTRACT

The Pugu and Kazimzumbwi forest reserves are among the 83 lowland coastal forests in Tanzania. The decentralization of these reserves can be called pseudo-devolution, because system does not allow for full participation of local government and villagers. This study intended to assess the devolution of power in historical perspective and the factors underlying it; identify types of forest resource use conflicts exist and factors underlying them; and assess existing and potential conflict resolution mechanisms. Qualitative data were analyzed using content and structural-functional analyses while quantitative data were analyzed using SPSS. For inferential statistical analysis, factors underlying forest resource use conflicts between users and regulators were quantified. The study found two types of forest resource use conflicts: between users and regulators and among users. Users and regulators conflict was reported as the major one and pseudo-devolution of power was among the major underlying factors. Perception on pseudo-devolution of power was found to have positive regression coefficient of 2.696 and significant ( $P=0.013$ ) and high odd ratio of 14.813. Distance from resource base to market was also positive and significant ( $P=0.027$ ). Ethnicity, education level, household size, and farm size had positive regression coefficient but not significant. The factors found to reduce forest resource use conflicts included distance from homestead to reserves which was negative and significant ( $P=0.017$ ) and duration of residence which was negative but not significant ( $P=0.316$ ). Furthermore the study found formal existing conflict resolution mechanisms include primary and district courts and potential formal conflict resolution mechanisms including JFMA. Informal potential conflicts resolution mechanisms include elders and religious groups. The study concludes that, forest resource use conflicts are largely a consequence of pseudo-devolution of power. Lastly, the study recommends, the need for full devolution of

power, creating alternative income sources, operationalizing potential conflicts resolution mechanisms and institutional mix in management of natural resources.

**DECLARATION**

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

\_\_\_\_\_

Zainabu Shabani  
(MSc. MNRSA)

\_\_\_\_\_

Date

The above declaration is confirmed

\_\_\_\_\_

Professor Kajembe, G C.  
(1<sup>st</sup> Supervisor)

\_\_\_\_\_

Date

\_\_\_\_\_

Dr. Mbeyale, G. E  
(2<sup>nd</sup> Supervisor)

\_\_\_\_\_

Date

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## ACKNOWLEDGEMENTS

The work owe the help offered by many institutions and persons, whom in one way or another made the completion of this study possible: 1) The Sokoine University of Agriculture (SUA) for providing me with admission, 2) Ministry of Natural Resources and Tourism for giving the permission to do research in its forest reserves, 3) Kisarawe District Forest Department for logistic support and information support concerning the study area, and 4) The Vice President's Office for the financial support and granting me the study leave. I wish also to express deep gratitude and profound appreciation to Prof. G. C. Kajembe and Dr. G. E. Mbeyale of the Department of Forest Mensuration and Management for their outstanding and tireless guidance throughout the study period and who critically reviewed the proposal and manuscripts of the dissertation. The valuable contribution made by the lecturers of MSc. Management of Natural Resources for Sustainable Agriculture (MNRSA) degree programme is also highly acknowledged. Special thanks are extended to: Mr. V. Saimon, Manager, Pugu and Kazimzumbwi Forest Reserves, Mr. Bayela, and Mr. I. Mashengere, DFO-Kisarawe for sparing their valuable time to discuss with me, Ms. Mujuni District Agricultural Officer (DAO)-Kisarawe, for field assistance during the PRA exercises; village leaders of Kazimzumbwi, Kisarawe, Pugubombani and Buyuni for their assistance during data collection. Mr. Makero, Mr. Majaliwa, Mr. V. Vyamana, Mr. M. Ntilicha and Mr. M. Mathew for assisting me with data coding and analysis whilst P. Nyiti of WSCT, Malugu and Babu Matunda of WWF for providing me with the information concerning Pugu and Kazimzumbwi Forest reserves. Furthermore, I am greatly indebted to my family, particularly my husband Mr. Y. Salum and my sons Salum and Shabani who have been a constant source of encouragement during the whole period of the study and who accepted to suffer the consequences of my absence.

Last but not least I thank God the Most Merciful and Beneficial for good health for the entire period of the study.



## **DEDICATION**

This work is dedicated to my parents and my brothers: My late father Shabani Bungwa Kashindi, my mother Fatuma Ndiyobhewe Kalimanzira and my brothers Said Shabani Bungwa and Rashidi Shabani Bungwa for laying a strong foundation for my education.

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## LIST OF ABBREVIATIONS AND SYMBOLS

CARE	- Care -Tanzania
DAO	- District Agricultural Officer
DFO	- District Forest Officer
FAO	- Food and Agriculture Organization of the United Nations
FBD	- Forest and Beekeeping Division
FGD	- Focus Group Discussions
FR	- Forest Reserve
GDP	- Gross Domestic Product
GEF	- Global Environmental Facility
JFMAs	- Joint Forest Management Agreements
Km <sup>2</sup>	- Square kilometer
MITMIOMBO	- Management of Indigenous Tree Species for Ecosystem

### Restoration and Wood Production in Semi-Arid Miombo

#### Woodlands

MNRT	- Ministry of Natural Resources and Tourism
NGOs	- Non Governmental Organisations
NR	- Natural Resources
NRM	- Natural Resource Management
NSGRP	- National Strategy for Growth and Reduction of Poverty
p.a	- per area
PFM	- Participatory Forest Management
PRA	- Participatory Rural Appraisal
SPSS	- Statistical Package for Social Sciences
SSNC	- Swedish Society for Nature Conservation
URT	- United Republic of Tanzania
VEC	- Village Executive Committee
VNRC	- Village Natural Resources Committee
WSCT	- Wildlife Conservation Society of Tanzania
WWF	- World Wide Fund for Nature

## **CHAPTER ONE**

### **1.0 INTRODUCTION**

#### **1.1 Background Information**

##### **1.1.1 Overview**

Tanzania has about 33.8 million hectares of forests and woodlands (URT, 2002a). About 13 million hectares of this forest area have been gazetted as forest reserves. Over 90 000 hectares of the gazetted area is under plantation and about 1.6 million hectares are under water catchment management (URT, 2001). Out of this total forest area, almost two thirds consist of woodland is on general land with no proper management. General lands are under enormous pressure from expansion of agricultural activities, livestock grazing, fires, over exploitation of wood resources and other human activities (URT, 1998a). These human activities have caused deterioration of ecosystems and soil fertility, reduced water flows and loss of biodiversity (URT, 1998a). The forests contribute to agricultural stability by regulating water balances, protecting soils and source of pollination for crops.

About 75% of the country's population live in rural areas (Word Bank, 2002, cited in Kajembe, 2006), and they overwhelmingly depend on agriculture and natural resources for their livelihoods and survival. Due to realization of the importance of natural resources in poverty alleviation, different policies and strategies have been developed so as to ensure sustainable management, supply of forest products and services. These policies and strategies include Forest policy (URT 1998a), National Land policy (URT 1997a), National environmental policy (URT 1997b) and National Strategy for Growth and Reduction of Poverty (NSGRP) (URT, 2005). For example, goals 4 and 5 of NSGRP underscore the aim of reducing income poverty of both men and women in rural and urban areas by reducing percentage of households whose main income is derived from harvesting, processing and marketing of natural products (URT, 2005).

The forest sub sector contributes 92% of fuel energy, protects watersheds for power generation, serve as source of water for irrigation, conserve soil and add nutrients to the soils for agricultural production (URT, 2001; MNRT 1998). Furthermore, forestry sub sector's contribution to the Gross Domestic Product (GDP) is 2–3.4% per annum (URT, 2001). The foreign exchange earnings from forestry sector in 2000 was USD 6.9 million derived from sales of various forest and beekeeping products which was an increase of 32.7% compared to 1999. The Government of Tanzania, in pursuit of the dual objectives of arresting forest degradation and furthering development, officially supports devolution of ownership and management responsibilities over some forest resources to the local communities (URT, 1998a).

Absence of full ownership does not preclude the possibility of other tenure rights over natural resources. While about 85 percent of the world's forests are publicly owned. It is increasingly apparent that locally based decision-making and tenure security influence the sustainability of forest management (World Bank and WRI, 2005). Long-term tenure security is necessary to ensure accountability and control of forestry operations at the local level (FAO, 2005).

However, most of the rural people typically remain poor because their land tenure is insecure (Bruce, 2004, cited by Romano, 2007). In addition, most sectoral policies and legal frameworks limit access to natural resources by local people. As pointed out by Hopley (2007), tenure reform has often been incomplete and restricted, with the state retaining most of the decision-making and control over high-value forests while showing clear weakness in managing them.

### **1.1.2 Forest tenure changes**

According to Romano (2007), forest tenure is defined as the combination of legally or customarily defined forest ownership rights and arrangements for the management and use of forest resources. Forest tenure determines who can use what resources, for how long and under what conditions. Legally, tenure is a bundle of both rights and obligations: the rights to own, hold, manage, transfer or exploit resources, but also the obligation not to use these in a way that harms others.

Forest tenure changes have to do with Policy reforms in the natural resources sector. According to Kajembe (2006), the themes of the new policies are all similar, local communities and individuals do not have adequate or secure rights to land and natural resources and exclusive central management has not led to efficient uses. Tenure is a critical element in the governance of natural resources. Consequently, reforming tenure to increase the degree of authority and responsibilities is a central component of those natural resource policy reforms, as stipulated in the Wildlife Sector Review Task Force (URT, 1995), Forest Policy (URT, 1998a), and Wildlife Policy (URT, 1998b).

For example, the National Forest Policy states that, the ownership of land and forest resources access and the rights to use them are of fundamental importance, not only for more balanced and equitable development but also to the level of care accorded to the environment. It is only when people can satisfy their needs, have control over the resource base as well as have secure land tenure that, long-term objectives of environment protection can be satisfied (URT, 1998a). Hence, lack of clear tenure over forest resources may create conflicts.

### **1.1.3 Decentralization in Forest Resource Management**

Decentralization denotes the transfer of power, authority and responsibility for decision-making, planning, management or resource allocation from the central government to its field units, local governments, regional or functional authorities, semi-autonomous public authorities, parastatal organizations, private entities and non-governmental, private or voluntary organizations (Rondinelli and Cheema, 1983). More often decentralization refers to the formal devolution of power to local decision makers. Sheona *et al.* (2002) argued that the last two decades have witnessed a paradigm shift in conservation and natural resource management (NRM) away from costly state-centered control towards approaches in which local people play a much more active role.

These reforms purportedly aim to increase resource user participation in NRM decisions and benefits by restructuring the power relations between central state and communities through the transfer of management authority to local-level organizations. In Tanzania, forests have historically been managed centrally through Forest and Beekeeping Division (FBD) under the Ministry of Natural Resources and Tourism (MNRT).

This type of management is characterized by extensive state control without involvement of local communities. The system has interfered too much on the local scene and undermined the traditional institutions, hence prevented them from playing their role in regulating resource use (Maganga 1993). The main problem with centrally managed forests was that, resources were thinly spread to the extent that their management was difficult. This kind of forest management resulted into forest degradation and deforestation through illegal activities and increased human pressure (MNRT, 1998; Wily and Dewees 2001).

Currently, the forest sub sector in Tanzania administratively operates under three parallel structures, Forestry and Beekeeping Division under the Ministry of Natural Resources and Tourism, the Regional Secretariat which is foreseer of all natural resources in the region, and Local Government Authority which predominantly own and manage the local government forest reserves (MNRT 1998).

#### **1.1.4 Resource use conflicts and conflicts management**

According to Kisoza *et al.* (2004), resource use 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. It is generally agreed that conflicts are abrasive behaviour in the society and that they must be resolved. Although a conflict could be destructive, it could also be productive if good, positive management practice is used. In fact, a good management practice could result in establishment of identity and independence, strengthen relations within a group or even build new relations or linkages. According to Otsuka and Place (2001), when growing populations put pressure on limited land and other natural resources, the result - is the absence of technological and institutional innovations – and consequently poverty and unsustainable use of natural resources and resource use conflicts. Conflicts over forests and tree resources involve several stakeholders, local communities, government agencies, NGOs, and private entrepreneurs at local, national, regional and global scales. To achieve sustainable utilization of resources, there is a need to prevent excessive use of natural resources, and reduce food insecurity and rural poverty (Otsuka and Place, 2001). A conflict could produce effects beyond the parties involved in a dispute, including the modification of the existing regulations, policies, laws, and rules.

### **1.1.5 Pugu and Kazimzumbwi forest reserves**

The Pugu and Kazimzumbwi forest reserves are among the 83 lowland coastal forests; in Tanzania (Burges and Muir, 1994). The Pugu reserve was gazetted as protective forest in 1947 under Forest Ordinance (CAP 389) while Kazimzumbwi was gazetted in 1954 under Section 4 of the Forest Ordinance (CAP 132) (WSCT, 1999). Many researchers have concluded that these reserves are habitat for several endemic and rare species of plants, invertebrates and vertebrates (Howell, 1981; Burgess *et al.*, 1993). The reserves provide social and economic needs to the adjacent communities and they are of greater importance and play a big role to the well being of these communities. The reserves are highly threatened because of their close proximity to the city of Dar es Salaam which has high demand for charcoal, building poles and other forest products (WCST, 1995). Another constraint is the declining soil fertility in several villages (especially those close to Dar es Salaam), there is now a shortage of land and many see these reserves as the only place they can move to (FBD, 2007). Various studies have shown that, the increased encroachment in Pugu and Kazimzumbwi is very serious, leading to the depletion of the forest resources (Mwamfupe, 1998) and hence resource use conflicts.

### **1.2 Problem Statement**

Pugu and Kazimzumbwi forest reserves are basically central government forest reserves. There has been decentralization of the management of the reserve whereby Kisarawe district council has been given the mandate to manage the reserve on behalf of central government (FBD, 2007). Although the aim of the decentralization was to bring decision making closer to the people but the kind of devolution instituted can be termed as pseudo-devolution. This is due to the fact that the management system available does not allow for

full participation of local government and villagers surrounding the reserves. Principles of devolution in the study area have been violated since the decision-making power to a large extent depends on the central government and is not democratic. Experience demonstrates that, where the institutional framework is weak; the devolution of forest management responsibilities to individuals or communities is bound to fail (Wily and Dewees, 2001).

Consequently, the reserves have been encroached by farmers and other users. FBD (2007) estimated that one quarter of the reserves has been converted to farms. Other activities include illegal logging for timber, tree felling/cutting for charcoal production, pole harvesting for building purposes, illegal firewood cutting and poaching of wild animals. A survey done by The Institute of Resource Assessment revealed that by 1988 the natural forests of Pugu and Kazimzumbwi had decreased by 14.24 .km<sup>2</sup>, and bushland area increased by 26.88 km<sup>2</sup> as compared to 1953 (WSCT, 2000). Due to open access regime situation, over the years utilization pressure has been increasing as a result of population increase and increasing demand by the surrounding villages/residents and hence resource use conflicts. A report by WSCT (2000) indicated that during the past two decades as a consequence of rapid population growth in the city of Dar es Salaam (at the rate of 4.8% p.a), pressure on peri-urban land has reached the villages neighboring Pugu and Kazimzumbwi forest reserves.

Some research including that of Evers (1993), Mgeni and Lulandala (1995), Howell (1981), Shishira (1988), and Mwamfupe (1998) documented important issues in the study area, but mostly on various ecological and biodiversity conservation, forest management, resource assessment and on encroachment. None of these studies however, addressed the issues of forest resource use conflicts as a consequence of pseudo-devolution of power.



Therefore, this study intends to develop typology of devolution of power and factors underlined it, identify different types of forest resource use conflicts and factors that underlying them as well as existing and potential conflict resolution mechanisms.

### **1.3 Study Justification**

The human population growth, cultivation and residential areas expansion are so serious and intense that Pugu and Kazimzumbwi forest reserves are among the most disturbed natural coastal forests in Tanzania (Burgess and Clarke, 2000). This study contributes to knowledge base on decentralization by devolution and policy processes for sustainable management of natural resources, in Pugu and Kazimzumbwi forest reserves. Lessons learned can be applied elsewhere in Tanzania and beyond to resolve ambiguities of pseudo-devolution of power.

### **1.4 Study Objectives**

#### **1.4.1 Overall objective**

The overall objective of the study was to assess the forest resource use conflicts as a consequence of pseudo-devolution of power in Pugu and Kazimzumbwi forest reserves.

#### **1.4.2 Specific objectives**

The specific objectives of the study are:

- i. To assess the devolution of power in the historical perspective in the study area and factors underlying it.
- ii. To identify types of forest resource use conflicts that exists in the study area and factors underlying them.
- iii. To identify existing and potential mechanisms for conflicts resolution.

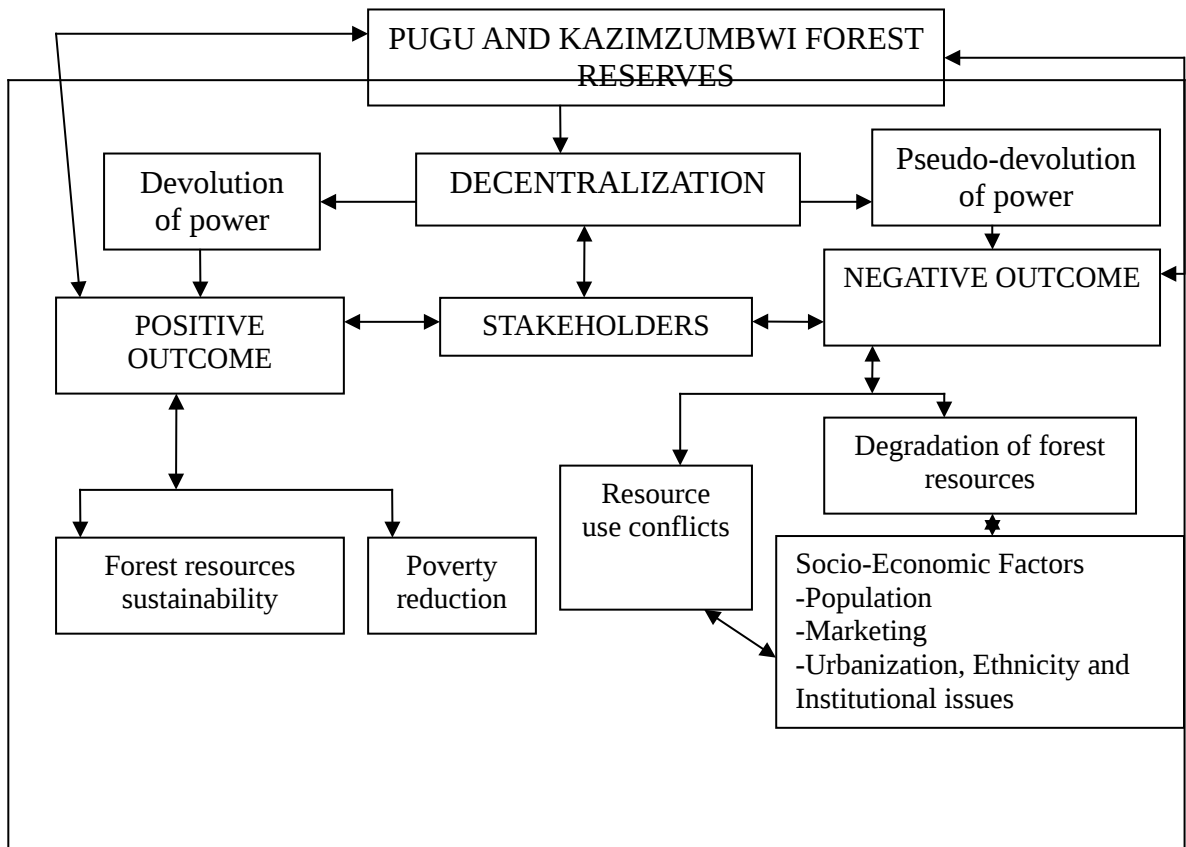
### 1.4.3 Research hypotheses

$H_0$  = Pseudo devolution of power does not lead to forest resource use conflicts.

$H_1$  = Pseudo devolution of power leads to forest resource use conflicts.

### 1.5 Conceptual Framework

According to Mayeta (2004), a conceptual framework binds facts together and provides guidance towards collection of appropriate data. A research performed without a conceptual framework is usually sterile for the reasons that the researcher does not know quite well what data to collect and when he/she has collected them, he/she cannot put them to use (Kajembe, 1994). The conceptual framework that underlined this study (Figure.1) indicates forest resource use conflicts in Pugu and Kazimzumbwi forest reserves as a consequence of pseudo-devolution of power.



**Figure 1: A conceptual Framework: Forest resource use conflicts as a consequence of pseudo-devolution of power in Pugu and Kazimzumbwi forest reserves.**

Likewise, the conceptual framework shows that resource use conflicts can be among different stakeholders including users, users versus facilitators, among regulators, regulators versus facilitators, among facilitators, users versus regulators. Socio-economic factors such as population pressure, marketing, urbanization, differences in ethnicity can also be the source of conflicts. Positive outcome of devolution of power may lead to poverty reduction and forest resource sustainability while the negative outcomes of lack of devolution or pseudo-devolution may include forest resources use conflicts, poverty as well as degradation of forest resources.

## **1.6 Limitations of the Study**

A number of limitations were experienced in the course of this study:

### **1.6.1 Respondents being suspicious**

The respondents were suspicious to the researcher; this is due to long standing conflicts between Kisarawe District Forest Officers and local communities. This was clearly seen during data collection when the researcher was accompanied by Kisarawe District Forest Officers; respondents were not happy and free to express their views. The situation was minimized when the researcher decided to be accompanied just by village leaders.

### **1.6.2 Problem of data recalling**

Data collection depended to a larger extent on respondents capacity to remember past events. As a result there were notable difficulties for respondents to give dates when devolution of power occurred. However, asking the same questions during PRA and focused group discussion minimized this problem. Kajembe (1988) cited by Kigula (2006) pointed out that, information based on memory cannot be reliable but if no records exist it may be the only way to get at least an idea of change.

### **1.6.3 Contradicting responses**

When the researcher asked if they have themselves involved in resource use conflicts, during PRA they said yes they have been involved but during household questionnaire interviews most of respondents said they have not been involved in the conflicts.

### **1.6.4 Unawareness of the devolution of power**

When the researcher asked who have the mandates to manage the reserves, local communities mentioned names of persons who are usually doing patrols. To minimize this ambiguity the follow up question was to ask from which offices they were coming from? Then they mentioned Kisarawe District Forest department.

### **1.6.5 Problem with financial data**

During financial data collection it was difficult to get the correct amount related to funding of certain activities forexample those funded by the Government (MNRT-FBD), and NGOs such as WSCT and CARE. This is because of poor institutional memory or just lack of transparency when it comes to issues of money.

## **CHAPTER TWO**

### **2.0 LITERATURE REVIEW**

#### **2.1 Natural Resources Tenure**

##### **2.1.1 Overview**

Natural resource tenure refers to the terms and conditions on which natural resources are held and used. According to Bruce (1986) if land is the natural resource under focus, land tenure refers to the terms and conditions on which land is held and used. Tenure is not a matter of man's relationship to natural resource such as land but is rather a social institution. It is a matter of relationships between individuals and groups of individuals in which rights and obligations with respect to control and use of land, for instance, are defined. In traditional agrarian societies, natural resource tenure is a profoundly important social institution (Birgegard, 1993).

Access to and use of natural resources, and notably land, has been and still is the key means for survival for the majority of the people in Sub - Saharan Africa (SSA). The control and use of land and other natural resources has been the way to sustain the family or the household, to maintain the clan and to enrich the tribe. For example, forms of marriage and inheritance rules evolved in response to the needs of social organizations to secure access to and exploitation of land (Mkangi, 1983). Access to and control of natural resources such as forest and wildlife is also a prime source of social position and power. Therefore, land and natural resource tenure is a profoundly political issue and it can be a mechanism for conflict resolution (Mkangi, 1983).

### **2.1.2 Forest tenure changes and their implication on resource use conflicts**

According to Hamza and Kimweri (2007) most of the 330 million hectares of forests in Africa are publicly owned (95 percent), the majority by central governments (83 percent). The government generally retains most of the responsibility for forest management either through exclusive control of forests or by granting non-commercial user rights to satisfy local people's needs for forest products. However, shifts are taking place, in particular to locally rather than state-run forest management (Romano, 2007). Tenure systems can be categorized on the basis of those who enjoy rights (right holders). Tenure systems fall into four broad categories: open access, common, private and state.

However, there are only a few areas left in most countries that are truly open access. The contribution of clear forest tenure to livelihood depends on the type and security of tenure arrangements. Where tenure is long-term and secure, people have the confidence and vested interest to make investments in forestry that will have positive impacts on their lives and on the resource (Wily and Mbaya, 2001). Banana and Gombya-Ssembajawe (1999) stated that, among the most important factors that affect the level of consumptive use of forests in many African countries is security of tenure and law enforcement.

Security of tenure is even more important than the type of tenure (Fisher, 1995 cited by Malugu, 2006), because where law enforcement is not adequate, there is open access and unsustainable use of forest resources, especially for those that are lacking security of tenure. Different forest tenure arrangements may produce different levels of economic benefits for forest owners or forest adjacent communities, and have different impacts on the natural resource use conflicts as well as environment and culture. Similarly, different

areas using the same forest tenure system may derive different incomes and benefits. Tenurial rights include but are not equivalent to ownership. Absence of full ownership does not preclude the possibility of other tenure rights over natural resources. Although most of Africa's forests are state owned and managed, tenure arrangements are emerging that provide tangible rights to local users through locally based forest management systems.

Tenure security refers to the assurance, robustness and durability of tenure, and includes the right to exclude others. While about 85 percent of the world's forests are publicly owned (FAO, 2006), it is increasingly apparent that locally based decision-making and tenure security influence the sustainability of forest management (World Bank and WRI, 2005). Long-term tenure security is necessary to ensure accountability and control of forestry operations at the local level (FAO, 2005). As stressed by Hobley (2007), tenure reform has often been incomplete and restricted, with the state retaining most of the decision-making and control over high-value forests while showing clear limitations in managing them.

In Tanzania, the contribution of forest tenure to poverty reduction depends on the type and security of tenure arrangements. Where tenure is long-term and secure, people have the confidence and vested interest to make investments in forestry that will have positive impacts on their lives and on the resource (Wily and Dewees, 2001). Limited financial, technical or human capacities of stakeholders involved in tenure reform are among the most common constraints to tenure diversification and consolidation and these can result into conflicts (FAO, 2005). Limitations, which are common is ineffective flow of information and poor communication about the reform, hampered by the use of overly

complex language or inappropriate media. These constraints limit the ability of various key players to adhere to legal requirements foreseen in the reform for example, to develop management plans, conduct forest inventories and request and register land titles (FAO, 2006). Secure tenure has much potential to contribute to reducing forest degradation, resource use conflicts and destruction. If this potential is to be realized, governments should give far greater emphasis to supporting local users, particularly disadvantaged groups, and to providing appropriate legislation.

## **2.2 Decentralization in Natural Resource Management**

### **2.2.1 Overview on decentralization**

Decentralization has been a very fashionable concept in the development literature since early 1980s. The 1990s witnessed a major resurgence and interest in decentralization as a key element of public sector policy reforms and management in sub-Saharan Africa (Stockmayer, 1999; UNCDF, 2000). The majority of countries have adopted decentralization policies, including strengthening local government and initiating processes of devolution in their national and sub-national development planning and programming (Reddy, 1999a). Many bilateral donors and international development agencies have sought to encourage this. The World Bank (2000) has seen decentralization as one of the key components to face the world's development challenges in entering the 21st century, including reducing poverty and promoting sustainable development. The fundamental aim of decentralization is to bring government closer to the people in the interests of enhancing efficiency and democratic accountability. Transfer of power and resources to the local level helps to empower communities to work together to define and resolve their problems (Reddy, 1999b; Stockmayer, 1999).



## 2.2.2 Types of decentralization

Decentralization can be either horizontal or vertical. Horizontal decentralization disperses power among institutions at the same level, while vertical decentralization, which is more useful, allows some of the powers of a central government to be delegated downwards to lower tiers of authority. Four major types of decentralization are commonly described in the literature, namely delegation, deconcentration, devolution and privatization (Rondinelli and Cheema, 1983; Reddy, 1999b). Manor (1999) added another type of decentralisation that is fiscal transfers.

- a) *Delegation* is the transfer of some responsibility and decision-making powers to organisations that are outside the regular bureaucratic structure and are only indirectly controlled by the central government. Delegation has only rarely been attempted. When it has been tried it has either failed to facilitate a genuine decentralisation of decision-making or it has impeded project implementation, or both (Manor, 1999);
- b) *Deconcentration or administrative decentralisation* is the passing-down of selective administrative functions to lower levels or sub national units within central government ministries and agencies (Reddy, 1999b). The central government is not giving up any authority. It is simply relocating its officers at different levels or points in the national territory. In such circumstances, it tends in practice to constitute centralisation (Manor, 1999);
- c) *Devolution or democratic decentralisation* is the transfer of resources, tasks and decision-making power to lower level authorities which are largely or wholly independent of the central government and which are democratic in some way and to some degree (Manor, 1995). This includes financial power as well as the authority to

design and execute local development projects and programmes (Hope, 2000). This type of democratic decentralization will be of further interest in the discussion of this work and plays an important role in the Tanzanian context as whole and in the study area;

- d) *Privatisation* refers to the transfer of all responsibilities for government functions and services to private enterprises or non-governmental organisations independent of the government (Reddy, 1999b). Critics argue that the private sector firms which take over the tasks from the state are themselves often quite large so that, far from being decentralised, power is actually passing from one major power centre to others. They also argue that user charges, which often come with privatisation, exclude many poor people and thus do not necessarily increase choice (Manor, 1995, 1999).
- e) *Sometimes decentralisation refers to down-ward fiscal transfers* by which higher levels in a system cede control over budgets and financial decisions to lower levels. This authority can pass either to deconcentrated bureaucrats and/or unelected appointees on the one hand, or to elected politicians on the other. When the latter occurs, fiscal decentralisation becomes relevant to democratic governance (Manor, 1999).

### **2.2.3 Devolution of power in natural resource management**

Shackleton and Campbell (2001) stated that, devolution open channels for rural dwellers to communicate their priorities to government decision-makers and in some places improve community-government relations (although in many areas suspicion continue to exist, e.g. Zambia, Zimbabwe and India). The authors further argued that, by encouraging local people to join new networks and forge new relationships, devolution may have also contributed to villagers' organizational capacity and political capital.

According to Sheona *et al.* (2002), in Asia, where devolution has been in place for longer time, local populations are demanding more autonomy, bringing about such reforms as the *Panchayat* extension to Scheduled Areas Act in India and the Indigenous Peoples Rights Act in the Philippines. In some countries, devolution policies addressed equity issues and made in-roads to enhancing participation of marginalised groups and women in decision-making (e.g. in Makulele, South Africa, Botswana) (Sheona *et al.*, 2002).

Manor (1999) argued that devolution or democratic decentralization on its own is likely to fail, “democratic authorities at lower levels in political systems lack powers and resources – meaning both financial resources and the administrative resources to implement development Projects. Decentralisation must be accompanied both by some fiscal decentralization (since that supplies financial resources) and by some deconcentration or administrative decentralisation (since that supplies bureaucratic resources required for implementation). If it is to have significant promise, decentralisation must entail a mixture of all three types: democratic, fiscal and administrative decentralization

In Tanzania different Policies, Acts, Guidelines and Regulations had been formulated in line with devolution of power (Yves, 2008) towards natural resources management. These include: National Environmental Policy (URT, 1997), National Forest Policy (URT, 1998), Beekeeping Policy (URT, 1998), The Village Land Act (URT, 1999), Local Government Act (URT, 1982), Forest Act (URT, 2002), Community Based Forestry Management Guidelines (URT, 2001) and Wildlife Management Area Regulations (URT, 2002).

**National Environmental Policy (1997)**

This policy provides support to processes of decentralization of environmental management. For instance, it allows for beekeepers to own, manage and use the resources (bee reserves) so as to prevent ecological degradation (Yves, 2008).

**National Forest Policy (1998)**

The National Forest Policy is quite clear on the need to bring unreserved forests and woodlands under the jurisdiction of local communities as Village Forest Reserves. This policy promotes tools to implement different community based management regimes, including Joint Forest Management and Community Based Forest Management, under which user rights have been clearly defined (Yves, 2008).

**Beekeeping Policy (1998)**

This policy has similar objectives as NFP (1998) regarding communities, similar tools and mechanisms; Village Bee Reserves (VBRs) instead of Village Forest Reserve (VFR). So the main tools are VBR (equivalent of VFR) and JFM in government forest, with the possibility of having beekeeping zones in a national forest reserves (Yves, 2008).

**Forest Act (2002)**

One of the objectives of this act is to delegate responsibility for the management of forest resources to the lowest possible level of management consistent with the furtherance of the forest policy. The Act defines different categories of protected areas that could be managed by communities, including the national FR under co-management schemes (Yves, 2008).

**The Village Land Act (1999)**

This Act empowers village governments with devolved management rights over the land. It enables villages to draft and enforce bylaws (but not to collect fines). It allows for the creation of Certificates of Village Land and the Right of Occupancy to forest land for both communities and individuals. Finally it establishes management institutions for Community Based Natural Resource Management (CBNRM) and Community-Based Forestry at village level, including Village Assembly, Village Council, Village Environment Committee (VEC) or Village Natural Resource Management Committee (VNRC) and Village scouts or guards (Yves, 2008).

**Local Government Act (1982)**

Local Government Act was adopted by the Parliament in 1999, following the 1997 Local Government Reform Agenda (LGRA) and the 1998 Policy Paper on Local Government Reform. This led to the establishment of the Ministry of Regional Administration and Local Government (MRALG) in 1998. The LGRA called for devolution of power from central to local government through the creation of largely autonomous institutions at the local level, which are strong and effective (Yves, 2008).

**Community Based Forest Management Guidelines (2001)**

They allow communities to own and manage forest resources on their land. The guidelines define CBFM as any forest management regime in which local people play a major role. This may be developed in unreserved forests in villages or general land, or in respect of government forest reserves. Moreover, it makes the distinction between Joint Forest Management (JFM) defined as involvement of local communities or NGO in the

management and conservation of forests and forest land with appropriate user rights as incentives, and Community Based Forest Management (CBFM) which implies ownership by the communities. Thus, generally JFM concerns state owned reserve and forest adjacent communities while CBFM concerns forest on village or general land. Main tool of JFM is JFM Agreement, while the main tool for CBFM is the Village Forest Reserve (VFR) (Yves, 2008).

It is widely agreed that Participatory Forest Management (PFM) may benefit Tanzania by arresting forest degradation and supporting the development and empowerment of rural communities (MNRT, 2001; Wily, 2000; Wily and Dewees, 2001). It has been recognized that the government alone is not able to protect and manage forest resources sustainably. Community involvement in forest management through PFM as well as clarification of ownership and user rights is seen as a possible solution (MNRT, 2002). There are many examples of CBFM and VFR in Tanzania. The first examples of CBFM in the country are well known and have been extensively publicised. The Duru- Haitemba and Mgori village Forests experiences have been as important as Selous and MBOMIBA experience in the wildlife subsector, in shaping the policy and legislations (Yves, 2008).

### **Wildlife Management Area Regulations (2002)**

They allow the Minister of Natural Resources and Tourism to declare land set aside by a village government as a Wildlife Management Area (WMA), which gives people some control over the wildlife resources on their land. The main tool of the new policy is thus the WMA, which, through the transfer of management gives local communities some control over wildlife resource on their land and enables them to benefit directly from these

resources. They give communities wildlife user rights and management opportunities and responsibilities. Participation in the management is realised through Community Based Organisation (CBO) (Yves, 2008)

The above policies in Tanzania try to address problems of weak governance by emphasizing a shift towards decentralization and devolution of government power to local government level. Such devolution of power is expected to have positive effects on sustainable management of natural resources at district and local community level.

## **2.3 Natural Resource Use Conflicts: Types and Factors Influencing Them**

### **2.3.1 Resource - Use Conflicts**

#### **2.3.1.1 Conflicts defined**

According to Robbin (1994) conflict is defined as a process that begins when one party perceives that another party has negatively affected something that the first party cares about. Wallensteen (1988) defines conflict as a social interaction in which a minimum of two parties strive at the same moment in time to acquire the same resources. Notwithstanding, the divergent views on the concept of conflict, a couple of general themes can be found in most definitions. Firstly, a conflict is viewed as mainly a perception issue, because for a conflict to exist the situation must be perceived as a conflict by parties involved. Therefore, many situations that could be described as situations of conflict may be not, if the parties involved do not perceive the conflicts.

In case of resource-use conflicts, most of the parties exhibit blocking behaviour. Since resources are limited and scarce, and peoples' needs (or wants) often exceed availability,

this leads to blocking behavior, with both parties trying to get more of the resources than the other side. When one party is perceived to block access to the resources for another, a conflict will probably result. Understanding conflicts within natural resource conservation increases the sociological body of knowledge on how conflicts are generated and resolved by local communities (Robbin, 1994). Conflict theorists have argued that societies are in constant state of change, in which conflict is a permanent feature. Conflict is often thought as the opposite of cooperation and peace and is commonly associated with violence. Lewis (1996) argued that many of the conflicts are counterproductive and destructive, leading to bad results and hostile relationships. Yet, conflicts have been said to play crucial roles 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 costs, but also as an opportunity for constructive change and growth (Kisoza *et al.*, 2004). According to Guerrero-Arias (1995) the term also encompasses not only the observable aspects of the opposing forces but also the underlying tension between them. As such, conflicts can be expressed at different levels including outright violence, tensions, hostility, competition and disagreement over goals and values.

### **2.3.1 2 Outcome of conflict**

The analysis of any conflict is subject to variation in the theoretical view on outcome. It is, therefore inappropriate to advocate that all conflicts are either good or bad. Whether a conflict is good or bad depends on the way it is being handled (CWS, 1998 cited by Kisoza 2007). 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 the achievement of goals then the conflict is destructive or dysfunctional. The measure that can differentiate functional from dysfunctional conflicts is group performance, as groups exist to achieve goals. As such it is the impact that conflict has on the group that defines whether the conflict is functional or not.

### **2.3.2 Natural resource use conflicts**

#### **2.3.2.1 Emergency of natural resource use conflicts**

According to FAO (2000) natural resource use conflicts are defined as disagreements and disputes over access to, and control and use of, natural resources. These conflicts often emerge because people have different uses for resources such as forests, water, pastures and land, or want to manage them in different ways. Disagreements also arise when interests and needs are incompatible, or when the priorities of some user groups are not considered in policies, programmes and projects. Such conflicts of interest are an inevitable feature of all societies. Resource-use conflicts may arise in any situation whereby there is a clash of interests or ideas amongst groups of resource users. In the context of resource conservation, resource-use conflict suggests that there is a group or groups whose interests are opposed to those of conservation institutions and authorities. Resource use conflicts, as such, may involve disagreements and disputes over access to, and control over resources use (FAO, 2000).

Conflicts over the use of natural resources such as land, water, wildlife and forests have been reported to be ubiquitous (Anyling and Kelly, 1997). People in different parts of the

world have competed for use of natural resource they need to enhance their livelihoods (Anderson *et al.*, 1996; Kajembe *et al.*, 2003). Nevertheless, the dimensions, levels, and intensity of conflicts vary greatly. They can be of different forms and at different levels ranging from local to global scale and the occurrences depend on their relevance or result from local actors who influence decision-making processes (Oviedo, 1999). The intensity of the conflicts have been reported to vary enormously from confusion and frustrations among members of the community over poorly communicated development and or conservation policies, to violent clashes between groups over resource ownership, rights and management responsibility (Kajembe *et al.*, 2003).

### **2.3.2. 2 Types of natural resource use conflicts**

According to Warner (2000) three main types of resources use conflicts are categorized in different resource use situations and outlines them depending on the types of actors involved and the levels at which conflicts are manifested. These include among community groups (resource users), or between community groups and the government (regulators), private or civil society organization/NGO (facilitators). Some of the conflicts common to Natural resources management include: intra-micro- micro conflicts, inter-micro- micro conflicts and micro-macro conflicts.

#### **Intra- micro -micro conflicts:**

- a) Disputes over land and rights to resources e.g. between private and communal land owners;
- b) Disputes over resource boundaries between individuals or groups;
- c) Family disputes over rights to resources;

- d) Unequal distribution of resources due to power imbalances favoring elites in natural resources projects; and
- e) Breaking rules and agreements (institutions) in resource utilization e.g. grazing or irrigation regulations (Wanner, 2000).

**Inter- micro -micro conflicts:**

- a) Conflicts between resource owners (regulators) and resource users;
- b) Lack of cooperation between different community groups;
- c) Conflicts between indigenous common property regime users and more recent settlers or seasonal and migrating users;
- d) Resentment built up due to lack of representation on village Committees; and
- e) Disputes resulting from growing wealth disparities (Wanner, 2000).

**Micro-macro conflicts:**

- a) Cultural conflicts between community groups and outsiders;
- b) Contradiction between natural resource needs and values e.g. between forest reserves/ National Parks/Game reserves and local livelihood security;
- c) Disputes over project management between community groups and outside project sponsors;
- d) Dispute arising from differences in expectations between NGOs and Government or commercial companies; and
- e) Dispute caused by political influence (Regional, District, Local).

Ebbin (2004) and Ramirez (1995) argued that understanding the nature of conflicts may vary among various actors depending on their interest, motivations, knowledge and resources.

### **2.3.3 Factors influencing natural resource - use conflicts**

A number of factors have been identified to be underlying different resource-use conflicts. The conflicts over resource use often emerge because people use and manage resources in different ways (FAO, 2000). These conflicts usually have multiple causes. They may originate from different perceptions of the parties involved in resource management regarding who should manage, use and benefit from natural resources.

Hence, a pluralistic approach that recognizes the multiple perspectives of the stakeholders and the concurrent effects of diverse causes in natural resource use conflicts is essential for understanding the initial situation and in identifying strategies for promoting change (Buckles and Rusnak, 1999). Kumar (1998) argued that more 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. Kajembe *et al.* (2004) asserts that other causes of conflicts may be due to geographical location, policies, land tenure, deficiency of local institutions and resource scarcity. The most important factors underlying resource-use conflicts include levels of resource degradation, population pressure, characteristics of resource users, and policies and laws governing use and access to resource.

#### **2.3.3.1 Levels of natural resource degradation**

Natural resources utilized as common pool resources, are in many cases facing increasing degradation. Resource degradation creates scarcities where the demand for the resources is basically greater than the supply.

### 2.3.3.2 Population pressure

Population pressure has many influences on resource use conflicts (Deslorges and Gauthier, 1996). This arises as a result of increased demand and competition for definitive resources through population increase. The increasing population has an effect of increasing demands as well as multiple social and economic dimensions that in the long run bring in natural resources scarcity (Kajembe *et al.*, 2004). Alternatively, resource-use conflicts may arise from immigrations, where user groups with different interests and attaching different values to the resources share the same ecological range.

Population dynamics refer to growth or decline of a population in a specific territory. The main process contributing to population change includes natural intrinsic rate of population increase and migrations (Borrini-Feyerabend, 1997). The population of a given territory grows when there is excess of births over deaths (natural increase) or when there are more people moving in the area (immigration) than departing (out migration). Borrini-Feyerabend (1997), reports migration as one of the main contributing factors to population dynamics and subsequently to natural resources use conflicts.

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 and water. This may lead to increased demand for these resources in the receiving ends. The immigrations may also lead to disruption of local mechanisms controlling use of local common pool resources creating conditions for resource-use conflicts. According to Borrini-Feyerabend (1996), today many rural areas in developing world are experiencing rapid population increase. This implies an increased demand for land for agriculture, water, grazing lands

and fuelwood. The author further argues that, increases in population size do not always signal a decline in environmental quality. In some cases, higher population density leads to agricultural intensification, higher yield per hectare and increased opportunity to produce for the local market.

According to Kisoza (2007), markets encourage individuals to specialize in different kinds of economic activities. By specializing in different occupations and exchanging surplus output, individual producers can alleviate the need for migration and storage of resources as a result of urbanization. Likewise, social factors are often involved in conflict. "Perceptions, access, and use of natural resources vary according to age class, gender, ethnicity, age, and other factors." For example, people use forests as a source of fuel, medicine, construction materials, and so on. Business people see the forests as an important source of cash that should be invested in other commodities (Howell, 1981). Thus, the effect of population growth on the local productive capacity will depend on a number of factors including soil fertility, resilience of natural resource base, technologies employed by local populations and the political as well as the socio-economic environment at large.

According to Ghimire and Pimbert (1997), population decline can also have a negative impact on local resources. It can be beneficial, particularly when the ecosystems left undisturbed revert to a richer level of biodiversity. Yet, population decline can be harmful to the environment, especially in cases where human managed environments provide a rich habitat for a wide variety of species. The breakdown of interaction between human communities and local systems may even lead to a net loss in local biodiversity. Currently,

Tanzania is faced with the increasing human population and hence conflicting demands for natural resources which have led to major resources degradation. Luog, *et al.* (2000) and Kajembe *et al.* (2004) contended that resource use conflicts are on increase in Tanzania due to increasing human population, which has doubled over the last 25 years.

### **2.3.3.3 Characteristics of resource users**

The characteristics of resource users depend on their cultural backgrounds which include: ethnicity, norms, values and indigenous technologies. According to Kajembe *et al.* (2000), people use natural resources in different ways. For example, land, forest, and water are not just material resources people compete over, but are part and parcel of a particular way of life - farmers, ranchers, fishers, loggers – ethnic identity and asset of gender and age roles. The cultural and religious diversity of resource users have implications for the way land and other resources are managed. The socially defined groups may perceive themselves as having incompatible interests with those dependent upon particular resources, but who are unable to participate in planning or in monitoring its use as they are marginalized in decision-making (Desloges and Gauthier, 1996).

What changes from culture to culture is the way conflicts are perceived, as something to be avoided at all costs or as an opportunity for social change, and how they are used in a constructive, or too often, in destructive manner (Anderson *et al.*, 1996). The authors argue further that resource use conflicts occur when different categories of resource users have competing demands for shrinking resources. Resource scarcities lead to increased competition, and ultimately lead into resource use conflicts (Mandel, 1998). The greater unequal distribution of scarce resources in a system, the greater will be the conflicts of

interests between dominant and subordinate segments of the society (Kisoza *et al.*, 2004). The increased scarcity of resources due to a rapid environmental change, increasing demands, and their unequal distribution is therefore among the potential causes of conflicts. More importantly, the 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, 1998).

#### **2.3.3.4 Policies and laws**

A number of resource-use conflicts have been attributed to failure of policies governing use of resources both at national and local levels. Lewis (1996) argues that, resource-use conflicts usually results from policies governing resource use that do not involve all stakeholders in the planning or management of the resources. Also conflicts occur if policy, legal and institutional contexts are being developed without the participation of resource-dependent communities and without due considerations of their needs and aspirations (Desloges and Gauthier, 1996). Sometime resource - use conflicts emanate from personal centered interest of policy, project or program implementers at the local level. Resource-use conflicts can also result from failure of the central governments to recognize and empower local institutions to manage the local resources (Wyckoff-Baird, 1997). At most, central governments lack the in-depth local knowledge of resource management pattern, to be able to make and enforce appropriate natural resource management regimes (*ibid*). According to Lewis (1996) resource-use conflicts may arise due to the 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. Conflicts may also arise due to reluctance, by some government officials to take action in time to diffuse the tension or due to poor incentive structures and institutional framework.

## **2.4 Conflict Management and Conflict resolution in Natural Resources**

### **2.4.1 Conflict resolution process**

According to Lewis (1996), considerable interest is being generated in both theory and practice of conflict resolution. This interest is reflected in alternative dispute resolution procedures and conflict resolution programmes (i.e. practical techniques and professional procedures) that are being developed. Resolution of conflict means changing or transforming the relationship between the conflicting parties by solving the problems, which lead to the conflict in the first instance. The search for reduction/ or resolution of conflict is as old as humankind. Lewis (1996) posits that, although assessment of conflict is necessary precursor to designing an effective conflict management approach, but effective assessment should establish the stakeholders, the historical context and other pertinent scientific, socio-political and economic issues.

The key issues in the conflict resolution process are that the interests of parties in the conflict have to be clearly defined prior to any agreed definition of the problem. The process invariably requires a third party facilitation to assess and analyze the interactions, which may lead to acceptable solutions. The solutions must be fair and just and the conditions acceptable to the parties (Mackie *et al.*, 1995). As conflict management and conflict resolution process become more widely used, the role of the third party or facilitator is emerging to be of central importance. Therefore, the facilitator needs to have

an understanding of issues and must enable the parties to understand in some detail the situation and circumstances of the dispute.

All conflict resolution processes consist of three elements: the participation of protagonists, communication between parties and the decision-making powers enjoyed by the third party. Nature and /or degree of these elements determine the type and procedure adapted in resolving conflicts. The traditional method of seeking a conflict resolution is via a court settlement, where the third party – the court – has decisive authority. There is little direct communication and limited participation by the parties (Burton and Duke, 1990). A quasi – judicial arbitration involves the protagonists nominating representatives and select a third party to preside. This arrangement allows for rather more participation but still limited communication between parties and decisive third party. Arbitration is a procedure where a third party is asked to make a decision following consultations with parties, this allows for additional participation on a degree of direct communication, with the third party role still dominant. Conciliation or mediation process represents a significant reduction in the decision-making powers of the third party who basically acts as an honest broker where the parties are prepared to interact and to communicate directly. Finally, is the direct negotiation between the parties, where the role of the third party is minimal or non – existent (Mackie *et al.*, 1995).

The role of third party or facilitator in conflict resolution forum is to develop an analytical approach to the causes of the conflict, to increase the scope of protagonists understanding of the situation, to enable the parties to question information and assumptions, which have led to the conflict. Burton (1990) describes the problem-solving forum as “a filter to screen

out false assumptions and implications from existing knowledge, cultural and ideological orientations and personal prejudices". He posits that the main task of the third party/facilitator is to provide this filter.

#### **2.4.2 Conflict management and conflict resolution in NR**

Theoretical studies on resource conflicts and conflict management (e.g. Burton and Dukes, 1990) differentiate between causes, levels and phases of conflict; and make distinction between management problems, disputes and conflicts. These distinctions have implications for conflict resolutions. The authors posit that, conflicts are only fully resolved when the underlying sources of tension between parties are removed.

**Conflict resolution** is decision making process, which seeks to achieve agreements that explore the situation but do not either restrict or prejudice the outcome in advance. What is sought is a realistic basis on which to base future decisions. It is concerned with identifying the cause(s) of a dispute and an analytical process with four distinct characteristics: the solution is not an end product but a continuous process, requires a change in conceptualization of the problem, deals with the conflict in its total context and the basis of resolution is effective problem solving (Burton, 1990). Conflict resolution requires also a holistic view which reaches into the aspects of human behavior, whilst at the same time being politically realistic.

**Conflict Management** refers to a variety of collaborative approaches that seek to reach mutually acceptable resolution of issues in a conflict through a voluntary process (Waner, 2002). Conflict management requires intervention to reduce conflicts if there are any.

Buckles and Rusnak (1995) point out that the field of conflict management draws many of its principles from North American experience. In particular, under protected area settings, management of conflict has been regarded as a solution. It has become accepted as problem-solving, so much so that the terms “conflict management” and “conflict resolution” have become interchangeable (Mackie *et al.*, 1995). As noted by Cousins (1996), management problems involve arguments or differences over the choice of alternatives among persons having the same goals and interests; these are best dealt with through a process of problem solving, improving communication and improved personal interactions. Disputes involve competing but negotiable interests; here settlement processes such as judicial procedures, negotiations and bargaining are appropriate. Conflicts involve the development and autonomy of an individual or identity group, and are thus bound up with non – negotiable human needs and questions of identity (Maganga, 2002). Also the author concludes that resolution of conflicts require in depth understanding of relationships and often assistance of a third party.

Hence, there is considerable temptation, in most conflict situations, to focus on management causes to contain a conflict, rather than addressing the total situation with all its inherent challenges and complexities. As Burton (1990) states, “*the causes or sources of conflict between individuals and groups cannot be separated from the totality of relationships and the environmental conditions that promote relationships*”. Lewis (1996) observes that, “*Compromises produced by conflict resolution may be better for the environment than forced decisions that nobody respects*”. Therefore, it is critical in conflict resolution to get the aggrieved parties in consultative process so that they appreciate each other’s perspectives.

Traditionally, the conflicts and disputes were settled through courts of law, and indeed most disputes are still determined by the judicial system, which is supposed to grant equity and justice. But the litigation has proved to be more and more expensive, and the associated delays are increasingly excessive (Mackie *et al.*, 1995). This has, during the 1970s, led the legal professional groups to develop the alternative dispute resolution procedures. These include arbitrations and other procedures and schemes that minimize the delays and high costs associated with formal litigation. These procedures constitute what is known as conflict management. This is different to “conflict resolution procedures”, which were largely developed in the academic institutions, and emphasize on the deep-rooted causes of the conflicts. Currently conflict resolution and or alternative dispute resolution procedures are being applied to a wide range of circumstances and issues, particularly in the resolution of environmental resource – use conflicts (Burton, 1990).

A number of studies (Cleaver 2001; Meinzen-Dick and Pradha, 2001; Maganga, 2002; Kajembe *et al.*, 2003), emphasize the need to recognize the role of local institutions in natural resource conflict resolution and management. In this regard the authors consider institutions to include knowledge systems, rules, norms, organizations and conflict resolution mechanisms. They also refer to formal institutions as those bounded by law, implying that enforcement of the rules is done through the state fiat, while informal institutions are upheld by mutual agreements or by relations of power and authority and thus the rules are enforced endogenously. However Buckles and Rusnak (1999) argue that local mechanisms of conflict management are not always equitable and effective, especially in conflicts involving multi-dimensions and increasing intensity. When conflict arises between community and government agencies, powerful enterprises or other

external users, traditional mechanisms may not be effective. Local communities in this situation are at a disadvantage. In such cases, informal rules, practices and mechanisms need to be balanced with formal conflict management mechanisms (Buckles and Rusnak, 1999).

In Tanzania pluralistic legal system exist whereby formal and informal legal systems are applied simultaneously or complement each other. Resources are regulated by different pieces of legislations and institutions, including statutory laws, customary laws of the more than 120 ethnic groups, Islamic laws and other religious laws. Under these situations, research on formal and informal systems of conflict resolution and management cannot be undertaken through the analysis of court cases alone. Cross fertilization and cross validation of formal and informal systems must be the best mechanisms of conflict management. Warner (2002) concluded that, in rural areas in Africa and other developing countries, a concept of pluralism in natural resource management and rural development which considers a number of autonomous and independent groups with fundamentally different values, perceptions and ideology that demand a role in decision making is receiving a wide acceptance as the more appropriate approach to deal with conflict situations.

## **2.5 Institutional Framework for Natural Resource Use and Conflict Management**

Sociologists define institutions as an organized and established procedures represented as rules of society or rules of the game (Jepperson, 1991). Institutional economists adopt similar interpretation in which institutions are referred to as humanly devised constraints that shape human exchange (North, 1990). Enforcement mechanism is also mentioned by

North as an institution. Blomley (1999) defines institutions as formal laws, informal conventions and norms of behavior, mainly designed to coordinate individuals and collective actions for controlling and managing the resources. According to Maganga (2002) institutions include knowledge systems, rules and norms, organizations and conflicts resolution mechanisms. Local institutions can be both formal and informal based on the location. Luoga *et al.* (2000) grouped local institutions into two categories namely internal and external institutions.

Formal institutions are those backed by law, implying enforcement of rules by the state, while informal institutions are upheld by mutual agreement, or by relations of power and authority, and rules are thus enforced endogenously (Cousins, 1998). The internally sponsored institutions are basically traditional and play important roles in natural resource management. Internally sponsored institutions represent establishment of local system of authority and other phenomena derived from socio-cultural and historical processes (Luoga *et al.*, 2000). They are used to regulate access to and utilization of various natural resources in a given society (Mayeta, 2004). These include norms, rituals and customs that govern protection of natural resources. For example, sacred forest of Nyumbanitu in Njombe is protected by the norms and rituals of the adjacent local community.

Externally sponsored institutions are basically the formally established institutions that are governed by the state which can be local or central government (Mayeta, 2004). These include all rules and regulations that control the management and utilization of natural resources. These include village governments, village development committees, village environment committees, non governmental organizations, civil society organizations and

also support from donor agents (Mayeta, 2004). Apart from written rules and procedures, informally established procedures, norms, practices and patterns of behavior form part of institutional framework (Bandaragoda, 2000). North (1990) gives a similar explanation that formal rule and those regulating the structures of property rights and contracts, while informal ones refer to norms of behavior or customary rules. The author notes that, informal rules have a tendency to override formal ones, making the enforcement of formal rules difficult thereby affecting performance. Kajembe *et al.* (2000) argued that while the coexistence of formal and informal institutions is inevitable, situations where some informal rules tend to contradict formal rules are obviously dysfunctional.

Furthermore, under certain settings where there is lack of enforcement or due to disregard towards the spirit of the written laws, the formal institutions become ineffective, and they are replaced by a set of practices that show divergence from the declared laws, rules and regulations. These practices can be referred to as “rules in use” (Kajembe *et al.*, 2004; Bandaragoda, 2000). But this situation can be reversed, depending on the bargaining power of the parties involved. In general, institutional frameworks serve to reduce the uncertainty of human actions, produce stability in society and promote organized behaviour and equity. According to Kisoza *et al.* (2004), the role of institutions in conflict management has been reported to be effective.

However, it is somewhat problematic to adopt a very strict distinction between ‘formal’ and ‘informal’ institutions of managing resource conflicts, since decisions in the formal primary courts are also influenced by ‘informal’ institutions such as tribal elders who sit in the courts as the assessors (Maganga, 2002).



In many situations, institutional mix is suggested as an appropriate approach of resolving and managing conflicts. This means that, both customary/informal and formal institutions are essential (Maganga, 2002). Lack of recognition of local institutions in natural resources management and utilization has in many cases led to the existing natural resources conflicts (Mayeta, 2004). Further more, the author, observed that the council of village elders may be responsible in conflict management and ensuring that natural resource are well managed and their utilization is properly regulated.

## CHAPTER THREE

### 3.0 METHODOLOGY

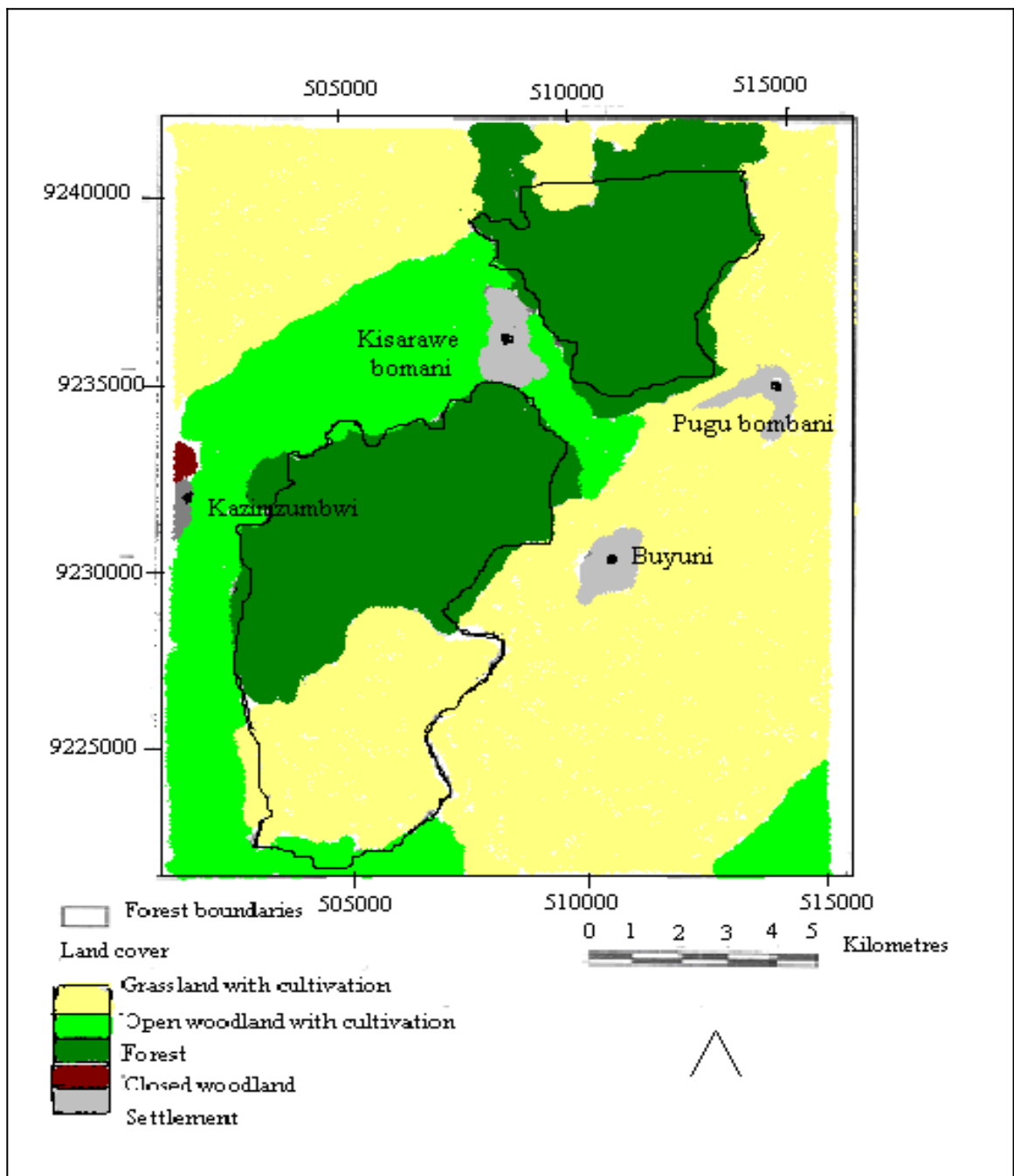
#### 3.1 The study Area

##### 3.1.1 Location

Pugu and Kazimzumbwi forest reserves are situated in Kisarawe district, Coast Region with part of their eastern boundaries falling in Ilala district, Dar es Salaam region. Pugu forest reserve lies between 06°53'00" and 06° 55'20" S and 39° 03' 35" and 39° 06' 50" E. It covers an area of 2 180 hectares of which less than 400ha remains in forested condition (Evers, 1993 cited by Malugu, 2006). Kazimzumbwi Forest reserve is located south west of Dar es Salaam between 6° 55' and 7° 00' S and 39° 01' and 39° 05' E. It has about 4 862.6ha of which 1800ha can be considered as forests. The study was carried out in four villages (Table 1) namely, Buyuni, Kazimzumbwi, Kisarawe bomani and Pugu bombani (Fig. 2).

**Table 1: Villages bordering Pugu and Kazimzumbwi Forest Reserves**

<b>Study Village</b>	<b>Ward/District</b>	<b>Forest Reserve</b>
Buyuni	Chanika/Ilala	Pugu and Kazimzumbwi
Kazimzumbwi	Kisarawe/Kisarawe	Kazimzumbwi
Kisarawe bomani	Kisarawe/Kisarawe	Pugu
Pugu bombani	Pugu Kajiungeni/Ilala	Pugu



**Figure 2: A map of the Study area (Pugu and Kazimzumbwi forest reserves) Source: Malugu (2006).**

### **3.1.2 Climate**

Pugu and Kazimzumbwi forest receive experience annual total rainfall of between 1000mm and 1200mm (Howell, 1981 and Malisa, 1995). Rainy periods are between October and December (summer) and April and June (winter). Temperature ranges between 24°C and 31°C (FBD, 2007).

### **3.1.3 Topography, soils and vegetation types**

Pugu forest reserve is composed of various vegetation types associated with variation in topography. Pugu forest reserve is located on top of Pugu hills which rise from 120m to 350m above sea level, while the altitude of Kazimzumbwi forest reserve ranges between 140m and 270m above sea level. Generally, the topography consists of wet valley bottoms, dry ridges at tops and intermediate valley sides (Malisa, 1995). According to Haule, *et al*, (1995 cited by Malugu, 2006), Pugu and Kazimzumbwi forest reserves are divided into four main types of Vegetation: closed forest, open forest, grassland (light scrub) and plantation forests. On the other hand, Hawthorne (1993), described Pugu and Kazimzumbwi forest reserves as heterogeneous characterized by ridge top, valley slope and valley bottom, vegetation embodying dry and moist forest tracts. The soils are tertiary Kaolinitic sandstones outcrop; they consist of well drained, deep, and moderately deep, fine textured soils with Eutric Nitrisol, Chromic Nitosol and Orthic Acrisol.

### **3.1.4 Population and ethnicity**

The population of the area is 95,614 people (URT, 2002b), the villages contributing to this population include Pugu Kajiungeni, Pugu Station, Pugubombani, Buyuni, Chanika, Kazimzumbwi, Kisanga and Kisarawe. The area is inhabited by different ethnic groups

including Zaramo, Ngoni, Nyakyusa, Pogoro, Kutu, Hehe, Ng'indo, Matumbi, Ha, Luguru, Ndengereko, Yao, Matengo, Makonde, Nyamwezi, Chagga, Kurya, Pare, Mwera, Kwere, Makua, Sangu, Sukuma, Haya, Gogo and some other small groups. The dominant ethnic groups are Zaramo (53.4%) followed by Ndengereko and Matumbi (6%), Makonde (4%), and Zigua (3%).

**Table 2: Population of the study villages**

<b>Villages</b>	<b>Population</b>	<b>Households</b>	<b>Sample size</b>
Buyuni	6 566	401	30
Kazimzumbwi	1 856	417	30
Kisarawebomani	3 290	510	30
Pugumbombani	4 318	632	30
Total	16 030	1 960	120

### **3.1.5 Economic activities**

The main activities in the area include farming (food and cash crops), charcoal making, and petty businesses. The crops grown include maize, cassava, paddy, palm, potatoes, peas and fruits. Non farm activities include charcoal making and selling as well as pole cutting and selling. Other activities include timber logging, kaolin mining, brick making, and exploitation of minor forest products including medicinal plants and bush meat selling. These activities pose a severe threat to the forest resources (FBD, 2007).

### **3.1.6 Biodiversity and catchment values**

Both Pugu and Kazimzumbwi Forest Reserves support a very high diversity of plant and animals species, including various rare and threatened species. Based on surveys done by Frontier (2004), some biodiversity resources of Pugu and Kazimzumbwi Forest Reserves include: 236 plant species, 32 species of mammals, 28 species of reptiles, 19 species of

amphibians and 140 butterfly species. The remaining natural forest of Pugu contains unique flora with 13 species believed to be endemic or near endemic to this area and 12 plant species on the current IUCN Red Data list of threatened plants (Table 3).

**Table 3: Some plant species of Pugu and Kazimzumbwi Forest Reserves**

Endemic or near endemic Flora of Pugu Forests	Threatened Plant species of Kazimzumbwi forests
1 <i>Baphia puguensis</i>	1 <i>Midbraedia carpinifolia</i>
2 <i>Humbertochloa greenwayi</i>	2 <i>Shirakiopsis trilocularis</i>
3 <i>Coffea sessliflora.var.mwasumbii</i>	3 <i>Baphia puguensis</i>
4 <i>Lasiodiscus holtzii</i>	4 <i>Dialium holtzii</i>
5 <i>Diospyros engleri</i>	5 <i>Newtonia paucijuga</i>
6 <i>Grumilea rufenscens</i>	6 <i>Mesogyne insignis</i>
7 <i>Tapinanthus longipes</i>	7 <i>Gardenia transvenulosa</i>
8 <i>Aspilia species</i>	8 <i>Multidentia castaneae</i>
9 <i>Casearia holtzii</i>	9 <i>Rothmannia macrosiphon</i>
10 <i>Xylopiya arenaria</i>	10 <i>Tarenna drummondii</i>
11 <i>Uvaria puguensis</i>	11 <i>Zanthoxylum holtzianum and</i>
12 <i>Sapium triloculare</i>	12 <i>Vitex zanzibarensis</i>
13 <i>Alchornea engleri</i>	

**Source: Frontier (2004)**

Msimbazi River arises from the Pugu hills provide water supply for local people, and in the past it was responsible for the supply of water to Dar es Salaam City. Pugu and Kazimzumbwi forest reserves have many valuable medicinal plants including: *Lanthaceae spp* (Pneumonia), *Diospyros spp* (fever), *Ficuss spp* (toothache), *Xylopiya parvi flora* (eyes) and *Foetidia africana* (Importence) (WSCT, 2004). Many species of plants have been collected from Kazimzumbwi forest reserve for cancer testing by the National cancer Institute in the USA.

## **3.2 Methods**

### **3.2.1 Data collection**

The study was carried out in two phases. The first phase involved carrying out reconnaissance survey and PRA exercises while the second phase involved mainly questionnaire surveys. Reconnaissance survey was conducted to get a general picture of the area. During this survey, pre-testing of questionnaires was done to check for clarity, comprehensiveness, redundancy, and meaningfulness of the items, to ensure that the amount of time required was not excessive and assess the reaction of respondents. For this study pre-testing of the questionnaires was done in Kisarawekibaoni, there after necessary modifications were made to suit the local conditions.

#### **3.2.1.1 Primary data collection**

Both qualitative and quantitative data were collected using a combination of methods: Participatory Rural Appraisal (PRA) methods, (e.g. participant observation, focus group discussions) and structured questionnaires.

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

This is an explanatory approach that aimed at creating a dialogue with stakeholders and getting necessary information from them through participatory communication and analytical methods (Mbeyale, 2008). Methods used include village resource mapping, problem ranking (pair wise ranking), and historical trend line and Venn diagramming. During village resource mapping exercises, villagers in a participatory manner, drew village resource maps using locally available materials eg chalks, trees etc. Types of forest resource use conflicts and the factors underlying them were identified and ranked.

According to Chambers (1992 cited by Mbeyale, 2008), with PRA, villagers with minimum level of education can comfortably participate in the exercises with the assurance of getting useful information in a relaxed conversation.

### **Structured questionnaires administration**

Structured questionnaires were used to obtain information on households. Households were randomly selected from four villages surrounding the reserves. This method aimed at getting information on socio-economic factors, devolution of power, forest resource use conflicts and conflicts resolution mechanisms.

### **Focus group discussions**

Focus group discussion is defined as a discussion in which a small number, usually 6 to 12 of respondents, under the guidance of a moderator (facilitator), talk freely about topics that are believed to be of special importance to the investigation (Kayunze, 2003).

### **Key informants interviews**

Checklists were used to collect information from key informants. A key informant is an individual who is accessible, willing to talk and has a great depth of knowledge about issues under discussion (Mayeta, 2004) and provides access to the large body of knowledge of the general community. Key informants are not only members of the clientele, but are most often informed outsiders (Mettrick, 1993). For this study, discussions were conducted with the Forest Manager, Natural Resources Officers, District Forest Officers; and Village Executive Officers.



### **3.2.1.2 Sampling Design and Procedure for questionnaire survey**

The design used was cross-sectional, whereby data were collected at a single point in time from a selected sample of respondents to represent a population (Kajembe, 1994). A sampling unit for the study was household. The World Bank (1995), defines household as a unit consisting of one or more persons related or unrelated who live together in one or more housing and have common catering arrangement. In this study a sample size of 30 households was adopted per village because fund and time constrain. According to Akitanda (1994), a significant representation can also be achieved when sample units contain 30 units from a population under study. Four villages selected were those surrounding the two forest reserves,

### **3.2.1.3 Secondary data collection**

Secondary data was collected from various sources including publications, reports from SUA National library, Ministry of Natural Resources and Tourisms, Kisarawe Districts Council and NGOs including CARE-Tanzania, WCST, and WWF as well as from Websites.

Qualitative data collected through PRA and key informants were analyzed using content and structural-functional analysis. A content analysis of the components of verbal discussions with respondents were carried out, where recorded dialogue was broken into smallest units of information, themes and tendencies. In this way the information was organized in a more objective and systematic manner. This aided the researcher in ascertaining beliefs, values and attitudes of respondents. According to Kisoza (2007),

Structural-functional analysis sought to establish relationship among social facts, and how these relate to the physical surroundings. The structural - functional analysis helped to understand the existing pseudo-devolution of power and its consequences in forest resource use conflicts.

### **3.2.2.2 Quantitative Data Analysis**

Both descriptive and inferential statistical analyses were carried out. All quantitative analyses were performed by using Statistical Package for Social Sciences (SPSS window version 11.5), Computer programme. Descriptive statistical analysis involved determining measures of central tendency and dispersion. For inferential statistical analysis a Logistic Regression Model was developed to show the relationship between devolution of power as a key independent variable as per research hypotheses and resource use conflicts as a dependent variable. According to Kajembe (1994), inferential statistical analysis helps in providing an idea about whether the patterns described in the sample are likely to apply to the population from which the sample is taken.

The Logistic Regression Model was used to estimate the probability of occurrence and non-occurrence of forest resource use conflicts in the study area. In this study, devolution of power, education level, ethnicity, household age composition, household size, duration of residency, farm size, distance from homestead bordering to the reserves, distance from homestead to the market, were considered as independent variables influencing forest resource use conflicts in the study area. Linear combination of these independent variables was established for prediction purposes.

The following prediction model (Logistic Regression Model) was used:

Resource use conflicts (Y) =  $f[\alpha + \beta_1(\text{devolution of power}) + \beta_2(\text{socio-economic factors})]$ .

$$\text{Prob(occurrence resource use conflict) = prob(Event)} = \frac{(e^{z_i})}{(1 + e^{z_i})}$$

$$\text{The prob(no occurrence of resource use conflicts) = prob(noevent)} = \frac{1 - \text{prob(event)}}{(1 + e^{z_i})}$$

$$= \frac{1 - e^{z_i}}{(1 + e^{z_i})}$$

$$(1 + e^{z_i})$$

Where:

$$Z = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_i X_i + e;$$

Z = linear combinations of independent variables:

Y = the value of the dependent variable. (Forest resource use conflicts)

$X_1$  and  $X_i$  = Independent variables

$\alpha$  = Intercept at Y-axis (dependent variable)

$\beta_i$  = Independent variable coefficients.

e = random error term =  $e = 2.718$

$i = 1, 2, \dots, n$ ; where n is the total number of variables. (Malugu, 2006)

can be from Central government to Local government, can either lead to the forest resources use conflicts by having positive expected sign of the estimate  $\beta$  ( $+\beta$ )

$X_2$  = Education level of the respondent (including years of schooling). Increase in education level is assumed to reduce incidences of resource use conflicts due to the fact that educated people have more options to meet their livelihoods. This also has a negative expected sign of the estimate  $\beta$

- $(-\beta)$ .  
 $X_3 =$  Ethnicity, Different ethnic groups are assumed to have different norms and cultural perception towards the use and forest resource conservation. Different ethnic groups can lead to higher chance of increasing forest resource use conflicts. This has a positive expected sign of the estimate  $\beta$
- $(+\beta)$ .  
 $X_4 =$  Age of head of the household. It is assumed that the more household is composed of the head with the age between 18-60 years the forest resources use conflicts is reduced because they are in active and productive age so they have to make sure that they meet alternative livelihood options. This have negative expected sign of the estimate  $\beta$  ( $-\beta$ ).
- $X_5 =$  Household size. It is assumed that by increasing the number of members in a household, the forest resource use conflicts are expected to increase. Because increase of household increases the household demands for different forest products. This has positive expected sign of estimated  $\beta$  ( $+\beta$ ).
- $X_6 =$  Duration of residence (years). Staying in a particular area for short time, the higher the incidences in forest resource use conflicts because individuals who have short term interest, with an area tend to maximize profit and are not interested with conservation hence has positive expected sign of the estimate  $\beta(+\beta)$ . While, Individuals who have stayed in a particular area for long times are interested in conservation hence reduces incidences of forest resource use conflicts. This has negative expected sign of estimated  $\beta(-\beta)$ .
- $X_7 =$  Farm size (ha). This is assumed to have a positive sign on the parameter estimate  $+\beta$  if the owned land is ( $<1$  ha) this means the less freedom of

allocating that land into different uses like cultivation, This means the higher the incidences of forest resource use conflicts due to higher likelihood of encroaching the reserves. The higher (>1 ha) the farm size, the resource use conflicts is reduced because the individuals can allocate the land for different uses. Hence this is assumed to have a negative expected sign of  $\beta$  ( $-\beta$ ).

$X_8$  = Average distance from homesteads to the reserves (km). It is assumed that the more closer is the respondent's homestead to the reserves, the more likely occurrence of resource use conflicts between reserved area authorities and the local communities. With Increasing the distance from the reserves to the homesteads the forest resource use conflicts between them are reduced. This variable can have either negative or positive value of expected signs of the estimate  $\beta$  ( $-\beta$ ).

$X_9$  = Average distance from the resource base to the market. It is assumed that the closer is the respondent's market to the resource base the more likely occurrence of forest resource use conflicts between resource base authorities and the local communities. Increasing distance from the resource base to the market reduces forest resource use conflicts. This variable can have either a negative or a positive value of the expected signs of the estimate  $\beta$  ( $+\beta$ ).

## **CHAPTER FOUR**

### **4.0 RESULTS AND DISCUSSION**

#### **4.1 Devolution of power in the historical perspective and factors underlined it**

##### **4.1.1 Devolution of power in the historical perspective**

Pugu and Kazimzumbwi are basically central government forest reserves. Pugu forest reserve was gazetted in 1947 and Kazimzumbwi forest reserve was gazetted in 1954 (WSCT, 1999). These reserves have been subjected to pseudo-devolution of power where by Kisarawe district council was mandated to manage the reserves on behalf of central government, this occurred in 1967. Table 4 shows major events related to Pugu and Kazimzumbwi forest reserves. These include gazettment of Pugu and Kazimzumbwi forest reserves, supposedly devolution of power, demarcation of the reserves, mapping and contributions made by WSCT and CARE-Tanzania.

**Table 4: A typology of major events related to Pugu and Kazimzumbwi Forest Reserves**

<b>Year</b>	<b>Events/Activities</b>
1947	<ul style="list-style-type: none"> <li>• Pugu forest reserve was gazetted under the forest ordinance (CAP 132).</li> </ul>
1954	<ul style="list-style-type: none"> <li>• Demarcation of public land and the reserve and registration with the MNRT</li> <li>• Kazimzumbwi forest reserve was gazetted, gazette number 306 under section 4 of the forest ordinance (CAP. 132).</li> </ul>
1967	<ul style="list-style-type: none"> <li>• Mapping of Pugu and Kazimzumbwi forest reserves</li> <li>• Central government partially devolves the management activities to Kisarawe District Council (pseudo-devolution).</li> </ul>
1991 - 1997	<ul style="list-style-type: none"> <li>• Wildlife Conservation Society of Tanzania (WSCT) initiated payments to the forest guards who were employed by MNRT.</li> <li>• WSCT in collaboration with Kisarawe District Natural Resource Office with support of Swedish Society for Nature Conservation (SSNC) organized a seminar on environmental and natural resources conservation.</li> <li>• WSCT supported the villages surrounding the reserves to develop Participatory Forest Management programme.</li> </ul>
1998 - 2003	<ul style="list-style-type: none"> <li>• The government through FBD resurveyed the boundary of the reserves with financial assistance from WSCT.</li> <li>• WSCT and CARE continued to organize seminars on environmental and natural resources conservation to surrounding communities.</li> <li>• WSCT encouraged surrounding villages to have Natural resource Committees (VNRCs) with the aim of making forest patrol, provide environmental education and forest conservation, clear boundaries of the reserves and to plant trees on the boundaries.</li> <li>• Care -Tanzania supported the villagers surrounding the reserves by providing training to VECs, Village leaders and communities</li> </ul>
2003 – 04	<ul style="list-style-type: none"> <li>• WSCT and CARE continued to pay forest guards, providing training to VNRCs, VECs, village leaders and communities.</li> </ul>
2005-2006	<ul style="list-style-type: none"> <li>• Kisarawe District-Forest Department continued with the management with the support from Central government(MNRT-FBD)</li> </ul>
2006 - 2008	<ul style="list-style-type: none"> <li>• FBD appointed a Manager for Pugu and Kazimzumbwi forest reserves with two Assistant Forest Officers (FBD, 2007).</li> </ul>

Table 5 shows the respondents awareness on the forest reserves ownership and on supposedly devolution of power. The results revealed that 45.8% of respondents were aware on the forest ownership of which 96.9% of the respondents reported the owner to be the FBD and 3.1% of respondents reported the owner to be local government (Kisarawe District-Forest Department).

**Table 5: Respondents' awareness on the ownership of forest reserves and on supposedly devolution of power**

	Buyuni	Kisarawe bomani	Kazimzumbwi	Pugu bombani	Average percentage
<b>Awareness of reserves ownership</b>					
Yes	50	56.7	33.3	43.3	45.8
No	50	43.3	66.7	56.7	54.2
<b>The owner</b>					
MNRT-FBD	93.4	94.2	100	100	96.9
Forest department- Kisarawe district	6.6	5.8	0	0	3.1
<b>Awareness of the existence of devolution of power</b>					
Yes	36.7	70	63.3	56.7	56.7
No	73.3	30	36.7	43.3	43.3
<b>Kind of devolution</b>					
Complete devolution	5.0	10.0	0	2.0	4.3
Partial or pseudo- devolution	90.9	70	97.0	96	88.5
No devolution	4.1	20.0	3.0	2.0	7.2

On the other hand 56.7% of respondents reported to be aware about the devolution of power, of which 88.5% respondents reported the kind of devolution of power to be partial or pseudo-devolution, 7.2% of respondents reported that there is no devolution of power and 4.3% of respondents reported presence of full devolution of power.



These results revealed that, some of the respondents failed to identify the owner of the reserves and if any devolution of power has occurred. They also failed to mention correctly the kind of devolution of power that exists, this is due to the fact that the communities surrounding the reserves are poorly involved in the management activities of the reserves. This is because the management approach does not allow participation of the villagers surrounding the reserves. Furthermore, the management of the reserves use top-down approach hence community awareness on natural resources conservation issues of Pugu and Kazimzumbwi forest reserves is minimal. The study further revealed that in the study area, the transfer of decision-making power to lower level authorities such as local government is minimal or just pseudo/partial in nature.

#### **4.1.2 Factors underlying pseudo-devolution of power in the study area**

Factors underlying pseudo-devolution of power include: inadequate financial and human resources and inappropriate management approaches.

##### **4.1.2.1 Inadequate financial and human resources**

Table 6 shows the funds for the management activities of Pugu and Kazimzumbwi forest reserves in the period 1990-2009. The support in terms of financial and human resources capacity was from central government (MNRT-FBD) and NGOs namely WSCT and CARE- Tanzania. The results revealed that, the devolution of power in the study area was done with limited financial resources as result, the officers acknowledged failure to achieve management objectives of the reserves. A plausible explanation is that, financial resources contributed by GEF via WSCT in year 1990-2000 was about 130 000 000 Tshs which

accounted for 92.9% of the total amount funded to fulfill the management activities as shown in Table 4 like forest patrol, to clear boundaries of the reserves and to plant trees on the boundaries etc. The funding through Central government (MNRT-FBD) in period the 1990-2000 was about 10 000 000 Tshs which was 7.1% of the total amount needed to manage the reserves.

**Table 6: Funds for the management of Pugu and Kazimzumbwi Forest Reserves**

<b>Year</b>	<b>Development Partner</b>	<b>Amount (Tshs)</b>	<b>Government of Tanzania</b>	<b>Amount (Tshs)</b>
1990-2000	WSCT via GEF funding	130 000 000	Central Government(MNRT-FBD)	10 000 000
2000-2004	WSCT and CARE	570 000 000	Central Government (MNRT-FBD)	25 000 000
2005-2009	WSCT and CARE	0	Central Government (MNRT-FBD)	35 000 000

The funding in period 2000-2004 was 570 000 000 Tshs from WSCT and CARE-Tanzania which accounted for 99.1% while central government (MNRT-FBD) contributed only Tshs 25 000 000 Tshs which was about 0.9%. The overall percentage of the funding from the NGOs was 95.9% while that from the central government was 4.1%. These results indicated poor funding from the central government (MNRT-FBD) to local government (Kisarawe District Forest Department). Furthermore, the funding in the period 2005-2009 was 35 000 000 Tshs from central government (MNRT-FBD), this was 100% because the NGOs terminated their contributions. The problem of poor funding is also supported by Kihyo (1998) who reported that, funding of the forest sector by the government has been

very modest. External donors to forestry sector have contributed over 90% of the total funding.

Table 7 shows the human resources which have been facilitated by central government (MNRT-FBD), WSCT and CARE-Tanzania so as to manage the forest reserves in the study area. The study found that in the period 1990 to 2004 the central government (MNRT-FBD) was paying only 2 permanent employees including the Forest Officer and an Assistant Forest Officer, while 8 Forest Guards were being paid by WSCT and CARE-Tanzania. Moreover, the period 2005 to 2009 the NGOs terminated their assistance, which led to inadequacy human resources for the management of Pugu and Kazimzumbwi forest reserves which is about 7 042ha. Discussions with district officials revealed that there is shortage of human power both in terms of casual labour and permanent employees. This is due to the fact that, the 3 casual labourers (forest guards) are now responsible for patrol of whole Pugu and Kazimzumbwi forest reserves instead of the 8 forest guards required for adequate patrols.

**Table 7: Human resources for the management of Pugu and Kazimzumbwi Forest Reserves**

<b>Year</b>	<b>Development partner</b>	<b>Human resources facilitated)</b>	<b>Government of Tanzania</b>	<b>Human resources facilitated</b>
1990-2000	WSCT via	5 forest guards	Central Government	1 forest officer, 1 forest assistant
2000-2004	GEF funding WSCT and	8 forest guards	(MNRT-FBD) Central Government	1 forest officer, 1 forest assistant

2005-2009	CARE WSCT and	0	(MNRT-FBD) Central	forest assistant 3forest guard,
	CARE		Government(MNRT- FBD)	1forest Manager and1 forest officer,1 forest assistant

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The requirement of human resources is at least 4 foresters and 8 forest guards but the current number of workers who are managing the reserves are 2 foresters who account for 50% of the required manpower and 3 forest guards which account for 37.5% of forest guards required as the result they failed to operate their responsibilities of patrol to the whole area of the reserves. The results are comparable to that of Ngaga *et al.* (2003) who reported that, the capacity of local governments to implement the Forest Policy of 1998 and the Forest Act of 2002 is very low both in terms of human and financial resources. The results are also supported by FBD report (2007) which indicated that, for the period 1991-2004 WSCT and CARE-Tanzania provided funds for a number of forest attendants in Pugu and Kazimzumbwi forest reserves. Moreover, Colman (1996) argued that the local governments performance in developing countries has not been successful in the management of natural resources as they face constant problems in various operations since they have been subjected to central government control both in financial and decision making capacities. It can therefore be argued that forests managed by the local governments like the case of Pugu and Kazimzumbwi Forest Reserves are suffering due to lack of enough funds and human resources.

#### **4.1.2.2 Inappropriate management Approaches**

Inappropriate management in the study area was another factor found to influence pseudo-devolution of power. The fundamental aim of decentralization is to bring government closer to the people in the interests of enhancing efficiency and democratic accountability, but the management approach in the study area is not participatory; it is rather top down (i.e. from central government to local government (Kisarawe District Forest Department)). There is insufficient devolution of power. During focus group discussions, the local communities reported that, they are not involved in the management of the forest reserves. Hence there is insufficient effort in empowering local communities and hence prevalence of pseudo-devolution in the study area.

### **4.2 Types of Forest Resource Use Conflicts and Factors Underlying Them**

#### **4.2.1 Types of forest resource use Conflicts**

In Pugu and Kazimzumbwi Forest reserves, resource use conflicts revolve around utilization of forest resources by the surrounding communities. Forest resources are the critical resources for both surrounding communities and for the residents of the city of Dar es Salaam. Forest resource use conflicts in Pugu and Kazimzumbwi forest reserves are centered on the interactions between users and regulators and among users. In identifying types of forest resource use conflicts, key players were identified including resource users, regulators and facilitators. Resource users are those found using the resources for either subsistence or commercial purposes, regulators are those organizations found regulating resources utilization including central and local governments; and facilitators are those found facilitating the communities in different ways mainly NGOs, CBOs namely WSCT, WWF and CARE-Tanzania; playing more or less the role of power brokers.

Key actors involved in resource use conflicts in the study area include:

- Resource users: these include farmers, timber traders, pit sawyers charcoal makers and traditional healers; and
- Regulators: these include District Commissioner (DC) and District Executive Director (DED), and District Forest Officer (DFO).

Table 8 shows perception on the existence of conflicts and types of forest resource use conflicts in the study area. The results revealed that 96.7% of respondents reported the existence of the forest resource use conflicts, of which 95.0% of the respondents acknowledged about the existence of users versus regulators forest resource use conflicts and about 5.0% of respondents reported the presence of users versus users conflicts.

**Table 8: Perception on the existence of conflicts and types of forest resource use conflicts in the study area**

	Villages				Overall percentage
	Pugu bombani	Kisarawe bomani	Kazimzumbwi	Buyuni	
<b>Perception on the existence of forest resource use conflicts</b>					
Yes	90.0	96.7	100.0	100	96.68
No	10.0	3.3	0.0	0.0	3.32

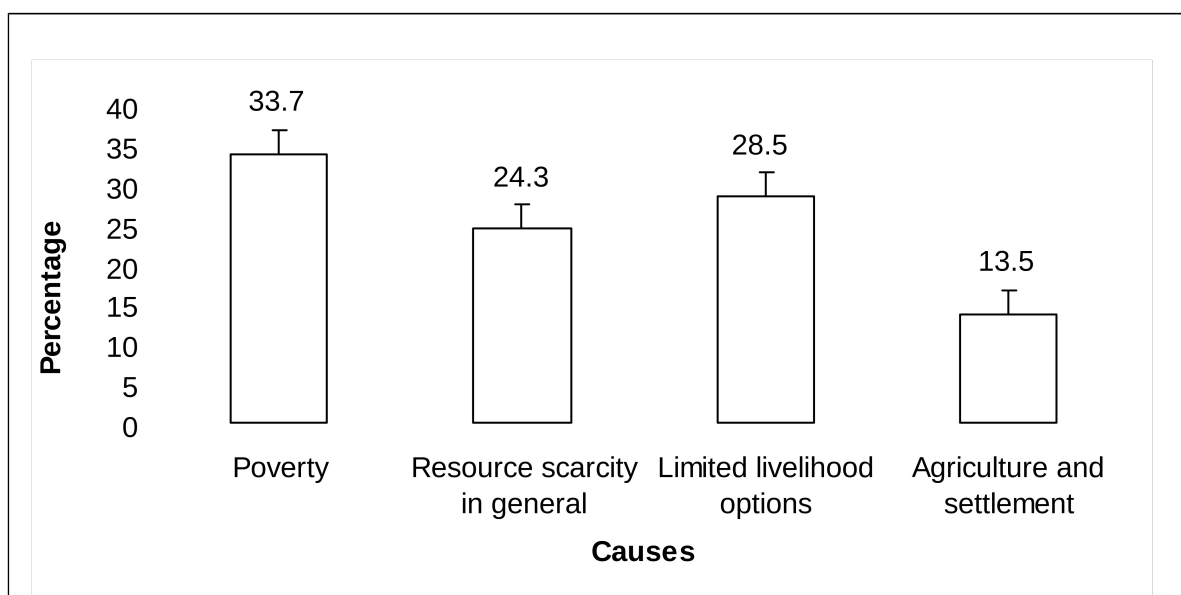
**Types of forest****resource use****conflicts**

Users vs.	96.7	86.7	96.7	100	95.03
Regulators					
Users vs. users	3.3	13.3	3.3	0	4.97

During focus group discussions with key informants the respondents argued that the main conflict is between users and regulators. This is due to the fact that respondents acknowledged to depend on the forest resources from the reserves for their livelihoods. Under this situation users and regulators remain in long standing conflicts since some of the local livelihood needs are not in harmony with the conservation objectives. The various resource use conflicts are further highlighted below.

**4.2.1.1 Forest resource use conflict between Users and Regulators**

Resource use conflict between users and regulators was reported as the major one in the study area. The causes identified (Fig. 3) include poverty, resource scarcity, limited livelihood options and land scarcity for agriculture and settlement. The study showed that 33.7% of respondents mentioned poverty as the main cause underlying the conflicts between users and regulators in all study villages, where most communities are poor in terms of income and assets. Inadequate livelihood options were reported by 28.5% of respondents whereby most of the respondents reported dependence on the forest reserves for their livelihoods; this means that there are limited options to meet the basic needs. Furthermore, resource scarcity in general was reported by 24.3% of respondents, and land scarcity for agriculture and settlement in particular was reported by 13.5% of respondents. All these causes seem to have stimulated encroachment into the forest reserves, thereby creating conflicts with the conservation authorities.



**Figure 3: Causes of forest resource use conflicts.**

Moreover, in 1994 there was a more serious conflict between communities (users) and the forest officers (regulators), this occurred when the forest officers conducted an operation to prohibit communities to enter the forest reserves. Since there are limited livelihood options, communities continued illegal cutting of timber, building poles and charcoal making (Malugu, 2006). Also in 2004 there was another serious conflict between villagers and government officials which occurred when the government officials tried to remove villagers who re-settled and cultivated in the reserves. These observations are similar to that of Mvena *et al.* (2000) who reported about negative relationships between regulators and users in Mufindi District. The authors indicated that the conflicts between local communities and regulators are based on the fact that communities normally view regulators as favouring undue protectionism of the resources by which communities consider to have inherited from their ancestors or God given gifts.



#### 4.2.1.2 Forest resource use conflicts among users

During focus group discussions key informants acknowledged presence of conflicts among users, mainly occurring during illegal cutting of timber or poles. They argued that if one leaves some forest materials on site and another person come and collect them, once they collide, then the conflicts between them emerge. Furthermore, the respondents revealed that, this type of conflict is generally minor in the study area.

#### 4.2.2 Factors underlying Forest resource use conflicts among users and between users and regulators

##### 4.2.2.1 Factors underlying Forest resource use conflicts among users

The factors identified (Table 9) include poverty, resource scarcity, land scarcity for agriculture and settlement and limited livelihood options. The results revealed that 50.7% of respondents reported poverty as the main factor underlying the conflicts among users in all the study villages, where most communities are poor in terms of income and assets.

**Table 9: Factors underlying Forest resource use conflicts among users**

	Villages				Overall percentage
	Pugu bombani	Kisarawe bomani	Kazimzumbwi	Buyuni	
<b>Factors</b>					
Poverty	45.10	55.03	40.12	60.03	50.7
Resource Scarcity in general	20.01	30.02	17.08	33.01	25.3
Scarcity of land for agriculture and settlement	20.09	10.5	20.8	3.8	13.8

Limited livelihood options	14.8	4.45	22	2.25	11.0
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Resource scarcity in general was reported by 25.3% of respondents, in which the respondents acknowledged dependence for most of natural resources needs from the reserves. Land scarcity for agriculture and settlement was reported by 13.8% of respondents, this is due to peri urban influence. Furthermore, inadequate livelihood options were reported by 11.0% of respondents where by most of the respondents reported dependence on the forest reserves for their livelihood; this means that there are limited options to meet the basic needs as a consequently of conflicts among the users.

#### **4.2.2.2 Factors underlying Forest resource use Conflicts between Users and Regulators**

Table 10 shows logistic regression results for the factors underlying forest resource use conflict between users and regulators. The model has predicted correctly the cases at 94.2% and statistically significant at  $P < 0.05$ . The Nagelkerke R square is 0.698; indicating that about 70% of the observed variation in forest resource use conflicts between users and regulators is explained by the independent variables. The -2 Log likelihood (=43.37) indicates that there is high fit between the model and the data.

Model Chi-square of 57.561, significant at 0.05 (df=9), -2 Log Likelihood 43.371, Nagelkerke R Square 0.698, No of cases 120, Overall Percentage 94.2%, Note: \* = statistically significant at 5 % (  $P < 0.05$ ) level of significance, Odds ratio = Probability of success/probability of failure, SE = Standard Error of the estimate, Sns = statistically not significant at 5% (  $P > 0.05$ ) level of significance.

Table 10 shows that, out of nine factors that have been analyzed, six factors have positive relationship to forest resource use conflicts between users and regulators and the other three have negative relationships. The factors contributing significantly to intensification of forest resource use conflicts between users and regulators include perception on pseudo-devolution of power and distance from the resource base to the market where as, factor that minimize forest resource use conflicts between users and regulators significantly is distance from homestead to reserves.

**Table 10: Logistic regression results for factors underlying forest resource use conflicts between users and regulators in the study area**

<b>Variables</b>	<b>(ß)</b>	<b>(S.E)</b>	<b>Wald</b>	<b>df</b>	<b>Sig</b>	<b>Exp(ß)</b> <b>(odds ratio)</b>
Perception on pseudo-						
devolution of power	2.696	1.084	6.182	1	0.013*	14.813
Education level	0.404	0.932	0.188	1	0.664Sns	1.499
Ethnicity	0.835	0.935	0.797	1	0.372Sns	2.304
Age of household head	-18.687	8356.517	0.000	1	0.998Sns	0.000
Household size	0062	0.160	0.151	1	0.698Sns	1.064
Duration of residence	-0.030	0.030	1.006	1	0.316Sns	0.971
Farm size	0.412	0.307	1.804	1	0.179Sns	1.510
Distance from						
homestead to the						
reserves	-.1.258	0.528	5.672	1	0.017*	0.284
Distance from resource						
base to the market	0.400	0.181	4.898	1	0.027*	1.492
Constant	19.321	8356.517	0.000	1	0.998	2.46E+08

**Sns-Note significant**

#### 4.2.2.2.1 Perception on pseudo-devolution of power

Table 10 indicate that perception on pseudo-devolution of power was positive and significant ( $P=0.013$ ). The variable has positive regression coefficient of 2.696 and odd ratio of 14.813, indicating that the perception on pseudo-devolution of power increases forest resource use conflicts significantly by a factor 14.813. Since the odds ratio is the measure of the effect or the ratio of relative importance of the independent variable in terms of the effect on the dependent variable odds, the results reveal that pseudo-devolution of power has the greatest effect on the forest resource use conflicts between users and regulators. Table 11 shows the perception towards pseudo-devolution of power in Pugu and Kazimzumbwi forest reserves

**Table 11: Perception towards pseudo-devolution of power**

<b>Response towards pseudo-devolution of power</b>	<b>Percentage</b>
Have not benefited from the devolution	87.5
Have benefited from the devolution	12.5
Have no access to the reserves	65.0
Have access to the reserves	35.0
There are no by laws guiding the access and use of the forest resources	87.5
There are by laws	2.5
Do pseudo-devolution is the factor underlying conflicts(Yes)	72.5
No	27.5

The results revealed that 72.5% of respondents reported pseudo-devolution of power as the key factor underlying forest resource use conflicts. This is because of poor involvement of the communities surrounding the reserves and inadequate environmental and natural resources conservation education to the surrounding communities. Kajembe *et al.* (2005) argued that, if the communities surrounding the natural resources are not involved in active management it is likely that they will use resources destructively. The authors further

argued that local communities have incentives to use resources unsustainably when they are not effectively involved in the management of the resources.

With respect to utilization of forest resources, Table 11 indicates that, 87.5% of respondents have not benefited from the devolution, perhaps because, a larger proportion (65%) of them had no access to the forest reserves. Moreover 87.5% of respondents claimed that there are no bylaws guiding access and use of forest resources compared to only 2.5% who acknowledged about the existence of bylaws guiding access and use of the resources, but the actual situation is that there are no bylaws. But in reality there are no bylaws in the study area. During focus group discussions, the respondents reported that, there are no open channels for communities to communicate their concerns to the government. These observations are supported by that of Desloges and Gauthier (1996), who reported that, conflicts between users and regulators occur if policy, legal and institutional contexts are being developed without the participation of resource-dependent communities and without due consideration of their needs and aspirations. Wyckoff-Baird (1997) further argued that, resource-use conflicts between users and regulators can also result from failure of the central governments to recognize and empower local institutions to manage local resources

#### **4.2.2.2.2 Distance from the resource base to the market**

Table 10 further shows that, the distance from the resource base to the market was positively correlated and significant ( $P=0.027$ ) with regression coefficient of 0.400 and an odds ratio of 1.492. This implies that, distance from resource base to the market increased the likelihood of the forest resource use conflicts between users and regulators by

multiplicative factor of 1.492. Table 12 shows the average distances from the resource base to the market.

**Table 12: Average distance from resource base to the market**

<b>Villages</b>	<b>(km)</b>
Kazimzumbwi	13.0
Buyuni	8.9
Kisarawebomani	0.8
Pugubombani	3.4

The Table shows that, the shortest distance from resource base to the markets is 0.8km and the longest distance is 13km. The resource base is connected to urban centre (Dar es Salaam city). This connectivity to urban markets increases the demand of forest products including firewood, charcoal, poles and timber from the reserves. Therefore household strive for more exploitation of forest resources. A plausible explanation for these results is that, there is much deforestation in Kisarawe-bomani (0.8 km) followed by Pugubombani (3.4km) and Buyuni (8.9 km) compared to Kazimzumbwi (13 km) hence conflicts between users and regulators are higher at Kisarawe-bomani.

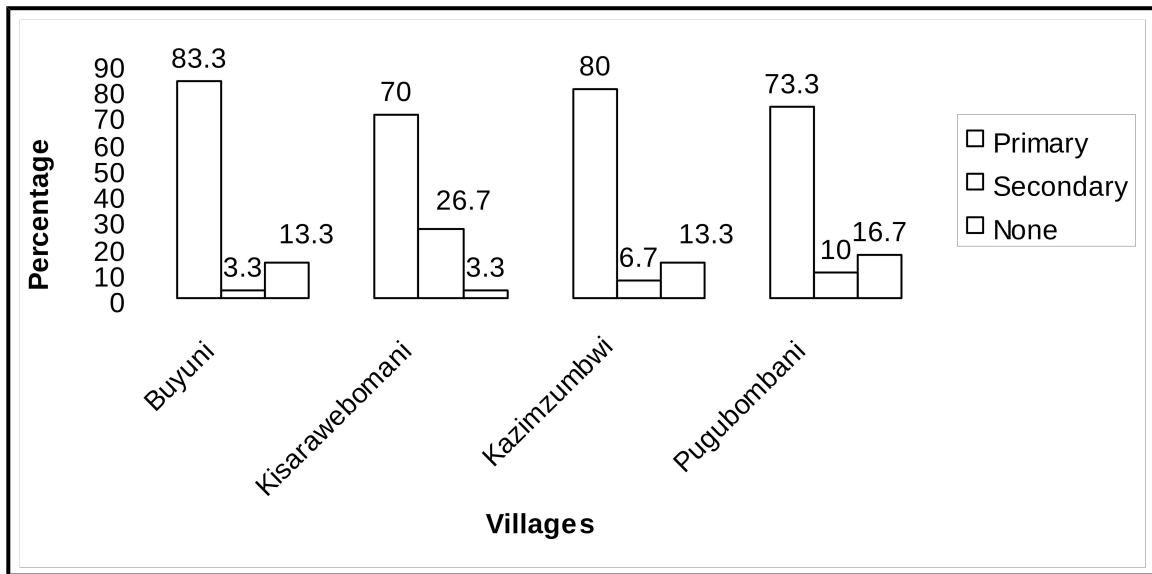
The results goes hand in hand with participant observation which revealed much deforestation in Kisarawebomani followed by Pugubombani compared to the other two villages since they are very near to the market. In Kazimzumbwi at least the forest resources are available and one can find timber, poles and other forest resource products. The results are in agreement with that of Agrawal (2001) who posits that, as local economies become better connected to larger markets, resource users are likely to increase harvesting levels because they can easily exploit the resources for cash income. Other view points are also plausible that the closeness of the forest resources to the district headquarter

makes it easy for the patrol teams to enforce forest regulations and therefore may not be subject to extensive deforestation as compared to distant forests that are not well patrolled.

#### **4.2.2.2.3 Educational level**

Table 10 shows that, education level was positively correlated with forest resource use conflicts in the study area but not significant ( $P=0.664$ ) with regression coefficient factor of 0.404, and odds ratio of 1.499. This is attributed to the fact that increase in education levels of the people have a likelihood of increasing challenge on forest management and there are possibilities of elites to corrupt the officials hence increasing forest resource use conflicts between users and regulators. Fig.4 shows that, educational levels of the respondents by villages in the study area whereby the majority (83.3%) of the respondents having primary education (formal education) are from Buyuni. About (26.7%) of respondents with secondary education are from Kisarawebomani, while (16.7%) of respondents with no education are from Pugubombani.

The results revealed higher conflicts between users and regulators in Kisarawebomani may be due to the fact that, there were higher percentages (26.7%) of respondents with secondary education. These results go hand in hand with participant observations which revealed much deforestation in Kisarawebomani compared to other villages since most of the respondents have secondary education and hence more challenge on the management approach.



**Figure 4: Education level of the respondents in the study villages**

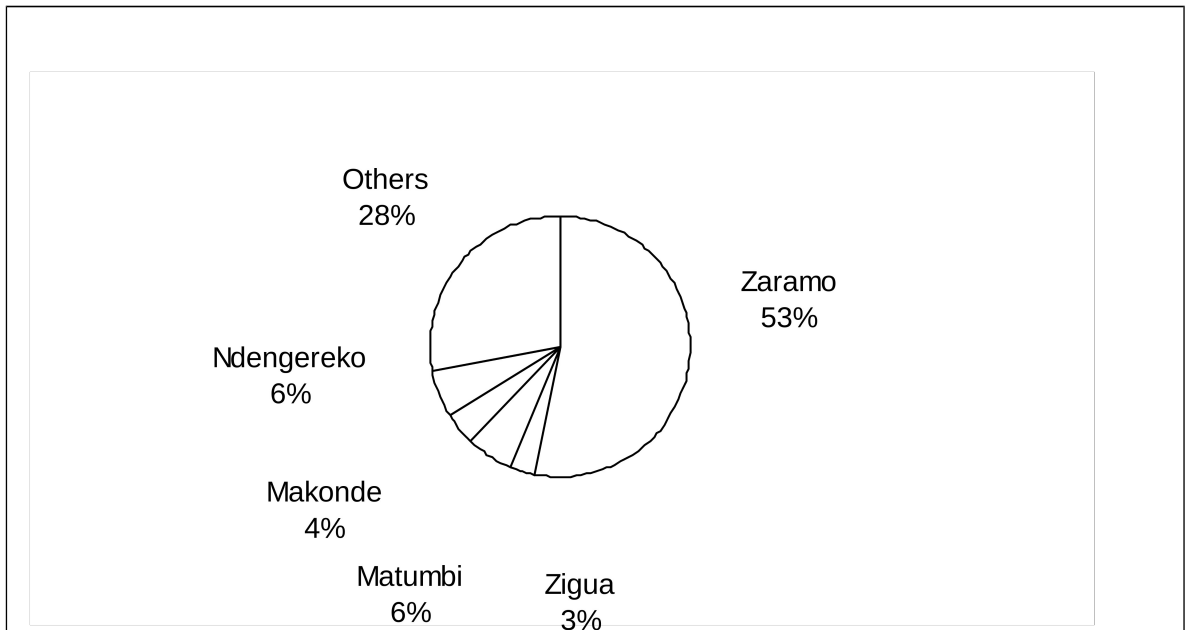
#### 4.2.2.2.4 Ethnicity

Table 10 also shows that ethnicity had a positive regression coefficient factor of 0.835 but not significant ( $P=0.372$ ) with an odds ratio of 2.304. This implies that increase in different ethnic groups within the study area tend to increase forest resource use conflicts between users and regulators by a factor of 2.304. Different ethnic groups have different norms and cultural perceptions towards the use and or forest resources conservation. Fig. 5 shows the major ethnic groups in the study area. Generally speaking, there are about 25 ethnic groups (Appendix 5), living adjacent to Pugu and Kazimzumbwi forest reserves.

The study shows that Zaramo as the predominant ethnic group occupying 53.4% of the study population followed by Ndengereko and Matumbi (6%), Makonde (4%) and, Zigua (3%). Other ethnic groups which migrated to villages around Pugu and Kazimzumbwi forest reserves include Hehe, Nyiha, Ruguru, Nyakusya, Yao, Gogo, Makua, Ngindo, Mwera, Nyamwezi, Kulya, Doe, Fipa, Kwele, Rangi, Mwiraki, Pogoro, Sukuma and



Chaga who make 28% of the population. Presence of about 25 different ethnic groups within the area pose differences in cultural and social challenges towards forest resource utilization, hence the likelihood of conflicts between users and regulators.



**Figure 5: Ethnic groups adjacent to Pugu and Kazimzumbwi forest reserves.**

For example the Sukuma put less value on trees compared to livestock while Makonde put more value on trees for carvings and Fipa ethnic group for medicine. Having many ethnic groups in the study area can also be explained by close proximity to the City of Dar es Salaam which is expanding towards per-urban. Kajembe *et al.* (2004) argued that resource-use conflicts may arise from immigrations, where user groups with different interests and attaching different values to the resources share the same ecological range. Likewise, Malugu (2006) reported that, in the societies of different ethnic groups like the case for Pugu and Kazimzumbwi forest reserves, it is difficult to abide to common norms with regard to resource use and conservation.

#### 4.2.2.2.5 Household size

Household size had a positive regression coefficient with a factor of 0.062 but not significant ( $P=0.698$ ) and odd ratio of 1.064 as shown in Table 10. This implies that increase in household size is likely to increase forest resource use conflicts between users and regulators by a factor of 1.064. The magnitude of forest resource use conflicts increase when the household size increase by one unit. This is attributed to the fact that, as the size of household increases the household demands for different forest products also increases. Table 13 shows average household size of the study area.

The study found that, the average household size was 6 people, while the minimum was 1 person and the maximum 15 people. The household sizes are relatively higher in all the study villages probably because of immigrants. Increase in household size, indicates increase in population and may result into high demand of land for settlement and agriculture in order to meet increased resource demand at a household level hence increase in resource use conflicts between users and regulators.

**Table 13: Average household size**

	<b>Average household size</b>	<b>Minimum household size</b>	<b>Maximum household size</b>
Kazimzumbwi	5	1	15
Buyuni	7	1	17
Kisarawe	4	1	14
Pugubombani	8	2	15
<b>Overall average</b>	<b>6</b>	<b>1</b>	<b>15</b>

This can also mean that, increase in demand for forest products, poles for building materials to meet housing requirements, firewood for domestic energy, and charcoal

production for selling to get cash income, can finally increase forest resource use conflicts between users and regulators.

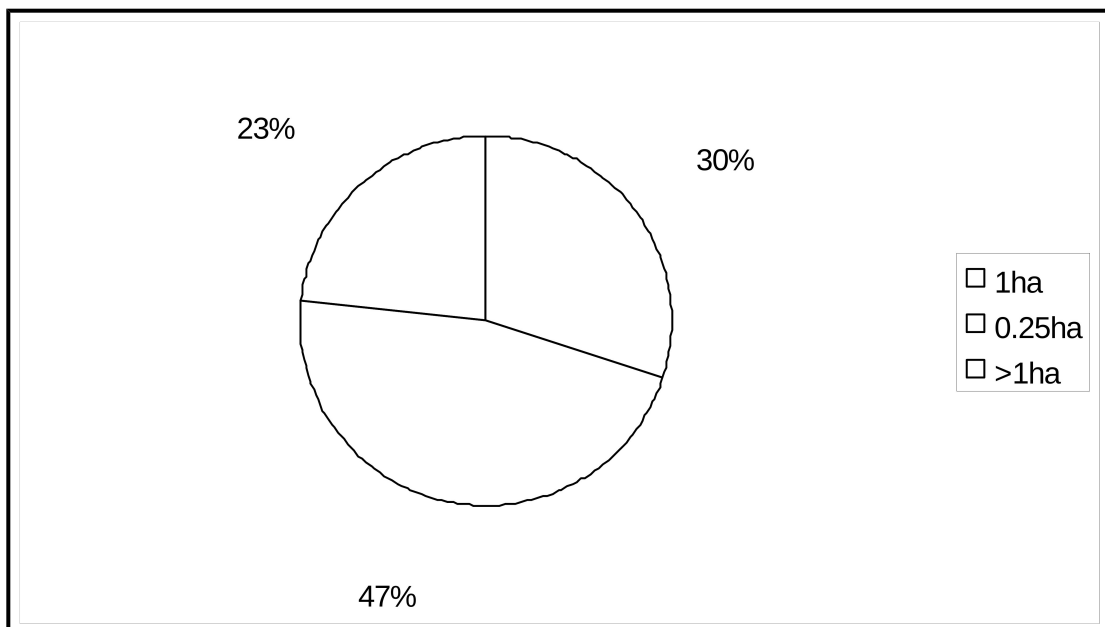
The findings are in agreement with that of Borrin-feyerabend *et al.* (1997), who insist that when there is population increase, there is more mouths to feed and hence more demand for forest resources. The population of a given territory grows when there is excess of births over deaths (natural increase) or when there are more people moving in the area (immigration) than departing (out migration). The authors further report migration as one of the main contributing factors to population dynamics and subsequently to natural resources use conflicts.

#### **4.2.2.2.6 Farm size**

Size of the farm owned by a respondent was positive but not significant ( $P=0.179$ ) with odd ratio of (1.510) (Table 10), implying that farm size owned by the respondent is likely to increase forest resources use conflicts between users and regulators. Farm size tends to increase the odds ratio of forest resource use conflicts by factor of 1.510. Since the farm was used both for cultivation and settlements, expansion of farm size for cultivation of crops and settlements in the study area increases forest resource use conflicts between users and regulators. This is due to the fact that respondents reported to obtain the farm through encroaching the reserves. WSCT (1995) reported serious encroachment in the reserves where the communities surrounding Pugu and Kazimzumbwi forest reserves encroached the reserves for cultivation.

Fig. 6 show sizes of the farms owned by the surrounding communities around Pugu and Kazimzumbwi forest reserves. The study shows that, 46.7% and 30% of respondents own

an average of 0.25 ha and 1.0 ha of farm sizes respectively. Those who own greater than 1.0ha account for 23.3% of the respondents (Fig. 6). These results revealed that, there is high chance for the surrounding communities to encroach the reserves because most of them have small areas for cultivation as well as settlements. Also it was reported that in the study area there is no clear process of obtaining land for agriculture and settlements. The results are in line with those reported by Mwamfupe (1998), who argued that, demand for land for cultivation has been identified as one of the factors underlying the degradation of Pugu and Kazimzumbwi forest reserves, as many people in the city of Dar es Salaam, tend to move to the peri-urban in search of land for cultivation to supplement their meagre income, and village surrounding Pugu and Kazimzumbwi forest reserves seem to be an obvious choice.



**Figure 6: Sizes of the farms owned by households in the study area.**

#### 4.2.2.2.7 Distance from homestead to the reserves

Distance from homestead to the reserves was negatively correlated to the forest resource use conflicts with regression coefficient of -1.258 and significant ( $P=0.017$ ) with an odd ratio of about 0.28 (Table 10). This implies that increase of distance from the homestead to the reserves tend to reduce resource use conflicts between users and regulators significantly by a factor of 0.28. Table 14 shows average distance from homesteads to the reserves. The results indicated that, 34.2% of respondents are residing within the average 2.4km from homestead to the reserves, the minimum distance from homestead to reserves was 0.9km and the maximum distance being 2.4 km.

**Table 14: Average distance from homestead to the reserves**

<b>Villages</b>	<b>(km)</b>
Kazimzumbwi	2.33
Buyuni	2.44
Kisarawebomani	0.9
Pugu-bombani	1.46

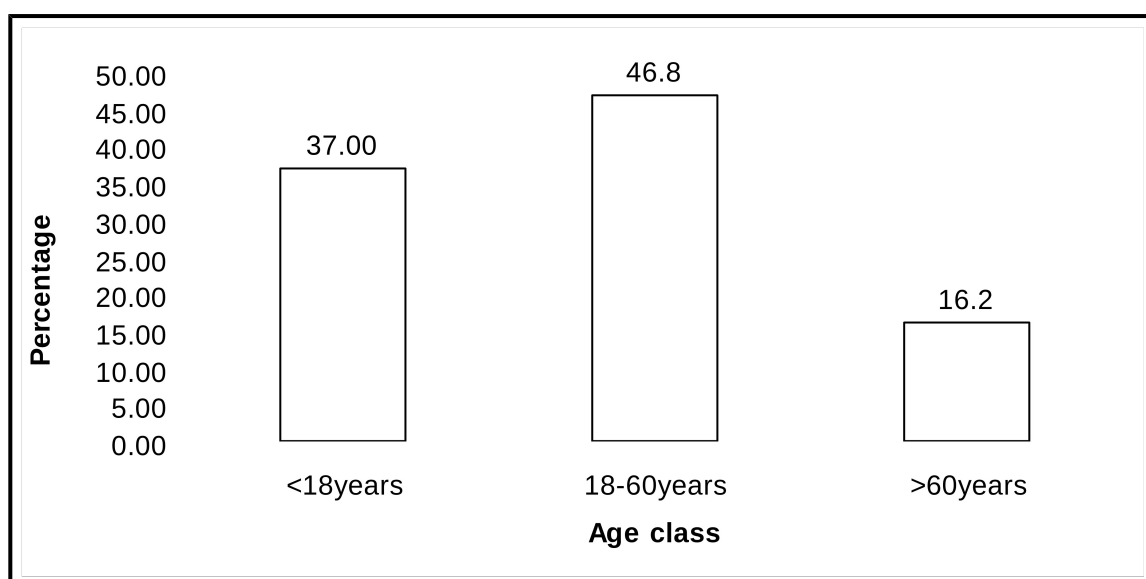
This means that as the village become closer to the reserves the encroachment is higher while the encroachment become less as the village become far to the reserves and conflicts between users and regulators is also reduced. These results go hand in hand with the results from participants' observation which revealed less deforestation in Buyuni (2.44km) and Kazimzumbwi (2.33km) hence reduced forest resource use conflicts.

#### 4.2.2.2.8 Age of head of the household

The age of head of the household was negative but not significant ( $P=0.998$ ) with an odd ratio of 0.000 (Table 10). The results indicated that, an increase of the household head with age of 18-60years decrease the chances of the forest resource use conflicts. The increase of

household head with the age of 18-60years is explained by odds ratio factor of 0.000 meaning that the household head with this age realizes the importance of conservation of the forest reserves for future generations. Fig. 7, shows the age of heads of the households of the communities surrounding the study area.

The majority 46.8% of respondents was within the age group of 18-60years and minority 37.0% and 16.2% of respondents were below 18years and above 60years old respectively. The results are explained by the fact that, the household heads with the age group of 18-60years have to find other livelihood options, instead of thinking more about the forest reserves hence reduce forest resource use conflicts between users and regulators.



**Figure 7: Age of head of the household in the study area.**

These results concur with those of Malugu (2006) who argued that, the aged people (above 60 years) are considered as an open minded with the interest of conserving the forest for future generations. The age between 18 and 60years are considered to be an active and

productive group involved in many development activities hence reduce chances of them being engaged in forest exploitation.

#### **4.2.2.2.9 Duration of residence**

Duration of residence was negative but not significant ( $P=0.316$ ) with an odd ratio of 0.971 (Table 10). These results show that increase of duration of residence in the study area reduces the likelihood of forest resource use conflicts between users and regulators. This implies that individuals who have stayed longer on the study area have vested interest on conserving forest reserves for future generations and this reduce conflicts with regulators as compared to those who are new comers to the area. It was revealed during the focus group discussions that those who are new comers in the study area are the ones who are busy with the activities which involve deforestation and degradation including charcoal making and timber within the reserves compared to those who have stayed longer time to the area.

### **4.3 Existing and Potential Conflicts Resolution Mechanisms**

#### **4.3.1 Existing conflict resolution mechanisms**

During focus group discussions the respondents reported different existing resolution mechanisms for managing resource use conflicts including formal and informal mechanisms.

##### **4.3.1.1 Formal conflict Resolution mechanisms**

Table 15 shows various existing conflicts resolution mechanisms in the study area. The Table shows that, 75% of respondents considered the presence of MNRT-FBD and local

government (Forest Department-Kisarawe District officials) as the existing conflict resolution mechanisms. It was revealed that these organizations use Primary or District courts resource use conflicts resolution mechanisms. The minority, about 16.7% of respondents reported village governments, 7.5% of respondents reported Village Natural Resource Committees and 0.8% of the respondents reported WSCT as the existing conflict resolution mechanisms.

**Table 15: Organization for controlling forest resource uses**

<b>Organization</b>	<b>Frequency</b>	<b>Percentage</b>
Local(forest-department Kisarawe district) and Central government (MNRT-FBD officials)	90	75
Village government	20	16.7
VNRC	9	7.5
WSCT	1	0.8
<b>Total</b>	<b>120</b>	<b>100.0</b>

These results indicate that, Village governments and VNRC are not working effectively in resolving forest resource use conflicts because Kisarawe District- forest department does not devolve power to these local level governance structures on issues of forest management.

However, for conflicts which are not associated with the forest resource use the mechanisms used include village government, ward tribunals, primary and district courts. During in-depth discussion with key informants they reported to take most of their cases to village governments and ward tribunals, which are important conflict resolution mechanisms because they take less time and cost than at the primary and district courts. At the ward and village levels, the incidences of corruption are relatively less compared to the primary and district courts. Ward tribunals main task is to reconcile the conflicting parties



by using both formal and informal rules and norms of the society in question in places with such mixed cultures, whose norms prevail. The problem with primary courts include delays in resolving disputes and dispensing justice. This was further exacerbated by corruption tendencies among some resource users and court officials. Respondents further reported that some cases took up to one year to be concluded in the primary courts. Among of the respondents 80% indicated that without bribing court officials, cases become unnecessarily complicated or experience delays.

#### **4.3.1.2 Informal conflict Resolution mechanisms**

It was revealed during FGD that, there are no traditional mechanisms for resolving forest resource use conflicts between users and regulators. Furthermore, 100% of respondents during questionnaire surveys reported to have no traditional mechanisms for resolving forest resource use conflicts. However, 3.3% of respondents indicated to have been involved in some kind of discussions with regard to resolving forest resource use conflicts. The traditional mechanisms in the study area were found to be inefficient because the communities surrounding the reserves are not involved in the management of forest resources and because of multiplicity of ethnicity. On the other hand conflicts which are not associated with forest resource use, resolution mechanisms involved informal mechanisms which include religious groups and elders.

#### **4.3.2 Potential conflicts resolution mechanisms**

During focus group discussions the respondents reported different potential resolution mechanisms including informal and formal conflict resolution mechanisms.

#### **4.3.2.1 Informal conflicts resolution mechanisms**

Empowerment and institutionalisation of traditional mechanisms such as using elders and religious groups were cited as potential mechanisms. This is due to the fact that, in the study area these mechanisms are currently used to resolve non forest use conflicts.

#### **4.3.2.2 Formal conflict resolution mechanisms**

The mechanisms include peoples empowerment through participatory approaches including Joint Forest Management Agreements between Village government and Kisarawe District Council. This means that, forest management in the study area can be bottom up instead of being top-down as is the case at the moment.

## CHAPTER FIVE

### 5.0 CONCLUSION AND RECOMMENDATIONS

#### 5.1 Conclusion

The study has demonstrated the existence of pseudo-devolution of power, whereby Kisarawe district council was mandated to manage Pugu and Kazimzumbwi forest reserves by the central government although with limited financial and human resources. The NGOs including WSCT and CARE-Tanzania were contributing 96% of the total financial resources for managing the reserves.

The study identified two types of forest resource use conflicts in the study area namely conflict between users and regulators and conflict among users, the former conflict was found to be the most prevalent. The factors underlying conflicts between users and regulators were quantified through logistic regression model. The identified factors underlying forest resource use conflicts between users and regulators include: pseudo-devolution of power which was highly significant ( $P=0.013$ ) with high odds ratio of 14.813 compared to other factors. This suggests that the empirical data support the alternative hypothesis of this study that pseudo-devolution of power leads to the forest resource use conflicts. Distance from resource base to the market was another factor which was also positive and significant ( $P=0.027$ ) with respect to resource use conflicts between users and regulators. The study further showed positive regression coefficients but not significant including education level, ethnicity, household size and farm size. Then distance from homestead to the reserves was negative and significant ( $P=0.017$ ) while age of head of the household and duration of residence were negative but not significant ( $P=0.998$  and

P=0.971) respectively, hence contributing to reducing resource use conflicts between users and regulators. Moreover, the study identified formal existing conflict resolution mechanisms including use of Primary and District courts as well as potential formal mechanisms including the need to empower people through participatory approaches mainly A Joint Forest Management Agreements and potential informal conflicts resolutions mechanisms including empowerment and institutlising traditional mechanisms such as elders and religious groups.

## **5.2 Recommendations**

Based on the results and conclusions of the study, the following recommendations are pertinent:

### **5.2.1 The need for full devolution of power to lower governance levels**

There is need to institute devolution of power with sufficient human and financial resources, and to have appropriate management which will empower communities surrounding the reserves through JFM Agreements.

### **5.2.2 The importance of creating alternative livelihood options**

Since communities surrounding the reserves are suffering from poverty, resource scarcity and inadequate alternative livelihood options, which are largely the causes of forest resource use conflicts between users and regulators, alternative income generation options should be instituted including mushrooms production, chalk making and beekeeping. This will increase employment opportunities to the surrounding communities.

### **5.2.3 The need to institutionalize potential conflicts resolution mechanisms**

Instead of using primary and District courts as the only formal mechanisms for forest resource use conflicts resolution, the government should take into consideration other formal potential conflicts resolution mechanisms including instituting Joint Forest Management Agreements (JFMAs) and informal potential conflicts resolution mechanisms such as elders and religious groups.

### **5.2.4 The need for institutional mix in natural resource management**

There is a need for institutional mix as an appropriate approach of resolving and managing, conflicts. This means that, both customary/informal and formal institutions should be used in resolving/managing forest resource use conflicts.

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## APPENDICES

### Appendix 1: Summary of techniques used for different objectives

No	Specific Objective	Data collected	Techniques used for Data collection	Techniques used for data analysis
1	To assess devolution of power in the study area and factors underlying it.	Type of devolution of power and Factors underlying it	PRA, participant observation, focus group discussions, Questionnaires	Descriptive statistical analysis Content analysis and structural functional analysis
2	To identify types of forest resource use conflicts that exist in the study area and factors underlining them	Types of forest resource use conflicts and factors underlying them	PRA, Participant observations, Focus group discussions Questionnaires	Inferential Statistical analysis using Logistic regression model, Content analysis
3	To identify existing and potential conflicts resolution mechanisms	Conflicts existing resolutions and Potential Mechanisms	PRA, Participant observation, Focus group discussions Questionnaires	Content analysis and structural-functional analysis

**Appendix 2: Household Structured Questionnaire**

A: Identification Data

Name of Enumerator-----Date-----  
 Village-----Ward-----  
 District-----

**INTRODUCTION**

You are requested to provide information on the following questions. All information will be treated confidentially.

**Section B: Household Data**

B1 Age of respondent..... (Years)

B.2 Gender of the head of household  
 (1) Male (2) Female

B.3 Marital status

1. Married
2. Single
3. Divorced
4. Widowed ( )
5. Others.....

B. 4 Religion---

1. Roman catholic
2. Muslem
3. Protestant
4. Traditional ( )
5. Other (specify)

B 5 Ethnicity .....

1. Zaramo
2. Yao
3. Ndengereko
4. Matengo
5. Others specify

B.6 Household composition

Age group	Male	Female
Under 18 years		
18-60 years		
Above 60 years		

B. 7 Actual number of household members-----

B. 8 What is your level of education? (Years of schooling)

1. Primary level
2. Secondary level
3. Adult education
4. College
5. University
6. None

B. 9 For how long you have resided in this village ?.....(Years)

B. 10 What is the total agricultural land you own .....(Ha)

B. 11 How far the market is located from the reserves? -----Km)

B. 12 How far is your homestead located from the reserves? -----Km)

### **C Devolution of Power**

C 1 Do you know the owner of these forest reserves? ---- (Yes/no)

C 2. If yes in C 1 who is the owner of these forest reserves?

1. Central government
2. Local government
3. Village government
4. Central and local government
5. Local government and village government
6. Others specify

C 3. Do you know if there is a pseudo-devolution of power in management of the reserves? ----- (yes/ no)

C 4 If yes in C3 who manage the reserves? -----

1. central government
2. local government
3. village government
4. others (please specify)

C 5 when do these pseudo-devolution of power occurred?

No	From -----to (years)	Kind of pseudo-devolution of power
----	----------------------	------------------------------------

C 6 What are the factors underlying these changes?

C 7. Have you enjoyed these changes----- (yes/no)

C 8 If yes in C 7 above can you provide the means of participation?

C 9. If no in C 7 above which delegation do you think is of most important? -----

C 10 Do you feel that you have the right to enter the forest reserves and/ or harvesting of forest products? ----- (yes/no)

C.11 If yes in C 10 above why? -----

C.12 If no in C10above why? -----

C 13 Do you have by laws guiding the access, and use of the resources from the Reserves? -----yes/no

C.14 If yes in C 13 above why? -----

C.15 If no in C 13 above why? -----

### **D Nature, types of resources use conflicts, factors underling them including pseudo-devolution of power**

D 1 Are there any resource use conflicts? ----- (Yes/no)

D.2 If yes in D1 between whom? -----and -----

D 3 When the resource use conflicts were first experienced in this village...

D. 4 During which time of the year the resource conflicts intensify? -----

D 5.Which resources do get involved in conflicts? -----

1. -----
2. -----
3. -----

D 6 What is the nature of the conflicts (physical violence, exchange of words, chasing? etc)  
-----

D 7 Who is involved in the conflicts? (Yourself in family members/ other members of the village?)

D 8 What are the reasons of conflicts? -----

1. Poverty
2. No alternative livelihood strategies
3. Land for agricultural activities
4. resource scarcity
5. land alienation for settlements
6. Others

D 9 Do you think pseudo-devolution of power have caused resource use conflicts? --- (yes/no)

D.10 If yes in D 9 above how can you say about it-----

D 11 if no in D 9 above how can you say about it?-----

### **E. Existing conflict resolution mechanisms and potential resolution Mechanisms**

E 1 Do you know the importance of the reserves----- (yes/no)

E 2 If yes in E 1 above mention

1. -----
2. -----
3. -----

E 3 If no in E 1 above why -----

E 4 mention any organization in your village which supervise/control forest resource use

1. Village government
2. Village natural resource Committee(VNRC)
3. Community Based Organization(CBOs)
4. Facilitators (eg WWF, WCST etc)
5. Government forest officers
6. Others (specify)

E 5 Which organization you mentioned in E 4 you feel has more power over resource control? -----

E 6 Do you have village Natural resource Committee (VNRC) in your village (yes/no)

E 7 If yes in E 6 can you mention some of the activities done by the VNRC, that you know? -----

E 8 Do you participate yourself in the Conservation activities? ----- (yes/no)

E 9 If yes, in E 8 which activities do you normally participate? -----

1. -----
2. -----
3. -----
4. -----

E 10 If no, in E 9 why? -----

E 11 What incentives do you think if provided, would attract you to participate in the management of the forest reserves;

1. Casual employment
2. Collection of non timber forest products (NTFPs)
3. Others (eg. forest based income generation activities, provision of environment education services specify



E 12 Are you happy with the current forest management approach applied to the reserves (i.e. use of forest guards and / or VNRCs----- (yes/no)

E 13 If yes or no in E12 give reasons-----

E 14 What should be done to improve the management of the reserves? -----

E 15 Do other member of the family participate in Conservation of management of Natural resources?---(yes/no)

E 16 If yes, in E 15 which activities do you they normally participate? -----

1-----

2-----

E 17 If no, in E 15 why? -----

E 18 How the resource conflicts are currently being resolved? -----

E 19 Have you ever been involved in discussion to resolve these conflicts at any level---- (yes/no)

E 20 If yes at E 19 at what level

1. Village leaders office (with VNRC)

2. Village meeting

3. At the forest Office

4. At the court

5. Others

E 21 what are your personal observations? -----

E 22 Is there any local mechanism for resolving resource conflicts?

(1) Yes (2)No-----

E 23 If yes in Qn. E 22, please explain-----

E 24 What are the conflicts resolution mechanisms currently being used that could be done in order to reduce these conflicts? -----

E 25 How do you rate the capacity of local government in conflict resolution?

E 26 In your opinions what are the potential resolution mechanisms of the resource conflicts?

### Appendix 3: Checklist for PRA

#### PRA GROUP MEMBERS (4 members from each group)

- A. Members from the village government for the selected villages
- B. Members of the Village Natural Resource Committee
- C. Prominent people in the village (preferably old people)
- D. Youth
  1. Village Resource map
  2. Historical trend line on the management of the reserves (Pugu and Kazimzumbwi.
  3. Time line on Forest resource use Conflicts
  4. Identification of pseudo-devolution of power in management aspect of the reserves.
  5. Identification of various factors underlying pseudo-devolution of power.
  6. Identification of various regulators that are involved in the management of the reserves.
  7. Venn diagram for various regulators and facilitators and conflicting interests relationship.
  8. Problem analysis through pair wise ranking and then scale down to specific key problems such user rights to the resources and relationship with the forests authority. To ask probing questions to bring attention of resource conflicts.
  9. To identify types of forest resource use conflicts that exists?
  10. Identification of factors underlying them
  11. Identification if pseudo-devolution of power cause forest resource use conflicts
  12. identification of conflicts resolution mechanisms current being used
  13. Identification of potential resolution mechanisms
  14. Matrix ranking of different types of resource use conflicts

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	PERCEPTIONS			
<b>Conflicts</b>	<b>Moderate(1)</b>	<b>Intense(2)</b>	<b>Very intense(3)</b>	<b>Score</b>
Among users				
Users versus facilitators				
Among regulators				
Regulators versus facilitators				
Among facilitators				
Users versus regulators				
<b>Score</b>				

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#### Appendix 4: Checklist for the key informants

A Village leaders

B Representatives of WCST and CARE

C District forest Officers

D Forest manager

1. General information

a) Name -----

b) Sex-----

c) Position-----

2. Who is the owner of these reserves ?-----

3. Is there any pseudo-devolution of power which has been occurred?--(yes/no)

4. If yes in 3 when this delegation does starts? -----

5. What are the factors underlying these delegation? -----

6. Which rules and regulations governing access and use of natural resources? In the past and present? -----

7. What are the types of the forest resource use conflicts exists? -----

8. What are the factors that cause forest resource use conflicts?-----

9. Do pseudo-devolution of power cause natural resource use conflicts?-----  
(Yes/no), if yes reasons-----

10. Do the local communities and other stakeholders depend on the forest and forest products obtained from the reserves for their survival and poverty reduction?

11. What are the commonly reported forest resource use conflicts?----

12. What are the impacts of the resource use conflicts on the forest management?-

13. What are current strategies exists that are used to resolve the conflicts on the resource use (particular forest)? ---

14. What are the effectiveness and potential mechanisms that can be used for conflict resolution? -----

**Appendix 5: Different ethnic groups surrounding Pugu and Kazimzumbwi forest reserves**

Ethnic	Villages				Average percent (%)
	Pugu Bombani	Kisarawe	Kazimzumbwi	Buyuni	
Zaramo	66.7	36.7	66.7	43.3	53.35
Ndengereko	3.3	0	13.3	6.7	5.83
Makonde	3.3	0	0	13.3	4.15
Matumbi	3.3	10.0	6.7	3.3	5.83
Zigua	3.3	6.7	0	3.3	3.3
Hehe	3.3	0	0	3.3	
Nyiha	3.3	0	0	0	
Ruguru	10	0	0	3.3	
Nyakyusa	3.3	0	0	0	
Yao	0	3.3	0	3.3	
Gogo	0	0	0	3.3	
Makua	0	0	0	3.3	
Ngindo	0	0	0	6.7	
Mwera	0	3.3	0	3.3	
Nyamwezi	0	3.3	3.3	3.3	
Kulya	0	3.3	0	0	
Doe	0	3.3	0	0	
Fipa	0	6.7	0	0	
Kwele	0	3.3	0	0	
Rangi	0	3.3	0	0	
Mwiraki	0	3.3	0	0	
Pogoro	0	6.7	0	0	
Sukuma	0	3.3	0	0	
Chaga	0	3.3	3.3	0	
Pogoro	0	3.3	3.3	0	