

**FOSTERING COLLECTIVE ACTION IN CONFLICT MANAGEMENT FOR
SUSTAINABLE LAND USE PLANNING IN ULANGA DISTRICT,
MOROGORO REGION**

BY

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE
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ABSTRACT

A study on fostering collective actions towards conflict resolutions was conducted in Ulanga District. The main objective of the study was to analyze and recommend collective action strategies in land use conflicts for sustainable land use planning and management in Ulanga District. A sample of 120 households was interviewed during the study. Structured questionnaire, Focus Group Discussions (FGD) and information from key informants were used to explain the variability in land use, dynamics observed and conflict management or resolutions were proposed. The partitioning of land into communal grazing land, land for crops were not formal and therefore influencing land acquisition and ownership in the study area leading to conflicts. The land ownership varied with size throughout the community and most of the land was categorized as village land where very few possessed land rights (customary or title deed). It was revealed that the occurrence of the conflicts in the area had a number of predisposing factors including overstocking (34.2%) and lack of proper land use planning (30.8%), and occasionally, unauthorized invasion by livestock keepers in farmer's fields and lack of by-laws and having corrupt leaders escalated the conflicts. Penalties, use of leaders and negotiations were the major means used in managing conflicts as shown by 29.6, 23.5 and 19.1 percentage of the respondents, respectively. Underutilization of the existing institutions and misuse of authorities impaired the efforts for conflict management. Regression results revealed that age of respondents related to duration of stay in the area, family size, education level and origin of the respondents greatly influenced occurrence of the conflicts observed and were statistically significant at $P < 0.05$. It was recommended that a need for establishing a negotiation platform was inevitable and that this could necessitate formulating collective action strategies for resolving conflicts and ensuring sustainable land use management in Ulanga district.

DECLARATION

I, Octavian Adam Moshiro, do hereby declare to the Senate of Sokoine University of Agriculture, that this dissertation is my original work and that it has neither been submitted nor being concurrently submitted for degree award in any other institution.

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The above declaration is confirmed

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Date

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DEDICATION

This work is dedicated to my parents' beloved father Adam Mroya Moshiro and my beloved mother Augustina Omari Mtei

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LIST OF ABBREVIATIONS

CALD	-	Cambridge Advanced Learners Dictionary
CAPRI	-	Collective Action and Property Rights
DAS	-	District Administrative Secretary
DFID	-	Department For International Development
DILAPS	-	Dares Salaam Institute for Land Administration and Policy Studies
FAO	-	Food and Agriculture Organization
FGD	-	Focus Group Discussion
KGCA	-	Kilombero Game Controlled Area
KVTC	-	Kilombero Valley Teak Company Limited
LUP	-	Land Use Planning
MLHUD	-	Ministry of Lands Human Settlement and Urban Development
NGOs	-	Non Governmental Organization
PRA	-	Participatory Rural Appraisal
SNAL	-	Sokoine National Agriculture Library
SPSS	-	Statistical Package for Social Sciences
STD	-	Standard
SUA	-	Sokoine University of Agriculture
UDC	-	Ulanga District Council
URT	-	United Republic of Tanzania
USA	-	United States of America
VAA	-	Village Agropastoralists Associations
VCRC	-	Village Conflict Resolution Committee
WFP	-	Wild Foot Prints Limited
WMA	-	Wildlife Management Areas

CHAPTER ONE

1.0 INTRODUCTION

1.1 Overview

This chapter is made up of seven sections. The first section presents the background information of land use conflicts in Tanzania and particularly in Ulanga and the effect of the conflicts. The second section discusses the problem statement followed by third section justifying the necessity of conducting this research. The fourth section composed up of the overall objectives followed by specific objectives. The sixth section is presenting the research questions; while the last section is illustrating the conceptual frame work of this study.

1.2 Background Information

In Tanzania land use conflicts have been an outstanding problem in the Northern, Southern and Eastern regions particularly in Arusha, Manyara, Mbeya and Morogoro. The country has witnessed repeated conflicts between pastoralists on one hand and farmers on the other in Kiteto, Ngorongoro, Kilosa, Mbarali and Kilombero Districts. Such conflicts not only that have claimed peoples lives, but have had an adverse affects on ecosystems in the Usangu Valley and Ngorongoro Conservation Areas among others (DILAPS, 2005).

Contrary to other African countries, land use conflicts in Tanzania was partly due to socialism and philosophy of self-reliance when the country nationalized all the land (Tulahi and Hingi 2006). As part of the implementation of the Arusha declaration, a programme known as villagization was initiated in 1973. This lead to about 55% of the population being resettled into organized villages. Land uses in those villages were a mixture between individual and communal or block farming (Hodgson, 2001). Resettlement schemes were initiated in a quest to improve provision of economic and

social services to the majority of the people. Despite of the good intentions, the villagization programme, coupled with limited resources, created uncertainty on land tenure as there were fears of possible relocation. The right property ownership were made fluid, farmers were offered users rights over land while grazing land was made communal and open to all (Tulahi and Hingi, 2006). In this case, pastoralists were pushed to the marginal areas (Hodgson, 2001). Following increased demand for rangeland and land for crop cultivation, farmers and agropastoralists entered into conflict due to the competition for land. There are growing conflicts between agriculture and other forms of land uses as both human and animal populations increase. This has resulted in encroachment of woodland, wildlife and rangelands (URT, 1997). However, the Government strives to develop mechanisms for, resolving conflicts among different interests (Wildlife protection, forestry, pastoralism and agriculture).

Livestock movements across farming areas designated for crop production escalated the conflict problem in various areas of the country especially Arusha, Mbeya Rukwa and Morogoro regions. In Morogoro region, particularly in Kilosa District land use conflicts claimed the lives of 38 people in 2000 when Maasai pastoralists fought with the indigenous peasants (Benjaminsen *et al.*, 2006). As some could put it, the Tanzania constitution that advocates any Tanzanian to settle anywhere in the country (URT, (1997), gave room for random movement of agropastoralists to areas where they could get enough pastures and water for their livestock. They concentrated in Usangu plain, Kilosa, and later in Kilombero and Ulanga. In 1990, the number of the immigrant pastoralist in the Usangu plain was 18% out of farmers (Walsh, 1997; Brehony *et al.*, 2004). In Morogoro, and Kilombero in particular, land use conflicts have been reoccurring several times and have posed negative impacts to the community. Damages on properties and residential have lead to increase in a number of homeless households who could also increase the need for

food aid (Benjaminsen *et al.*, 2006). The main stakeholders of land utilization in Ulanga include farmers and pastoralists together with organizations such as Wild footprints ltd and Kilombero Valley Teak Company Limited.

The latter owns forest plantations that occupy a total area of 23 408 ha in Ulanga District with a title deed of 99 years since 1994 (Brehony *et al.*, 2004). The livestock population increased from 20 000 in 1988 to 106 000 in 2004, and thus pastoralists started to use the Game controlled area for their activities. Brehony *et al.* (2004) reported on the conflicts between farmers and pastoralists but no interventions were planned to achieve sustainable mediation strategies to the conflicts in the society. Whenever conflicts occur, blames had been directed to the pastoralists and it was no wonder to have the report by Brehony *et al.* (2004) suggesting that as a means of resolving conflicts the number of livestock in the area should be reduced. This won't bring an everlasting solution to the conflicts, alternative methods of managing the conflicts need be thought for. However, more data seemed to be required in searching for alternative means in fostering community actions towards resolving conflicts and come up with lasting solutions if not resolutions. This study therefore intended to seek for alternatives in fostering combined actions towards resolving conflicts between groups in Ulanga District.

1.3 Problem Statement

Conflicts on resources between different groups are not new and many investigations have been done on the causes in many parts in the World including Tanzania (Fratkin, 1997; Obara and Jerkins, 2006). A study by Mombo *et al.* (2006) revealed that, shortage of farming land, environmental degradation by livestock from pastoral villages, unclear boundaries and lack of stock routes were the most prominent problems that accounted for persisting conflicts in Kilosa. Conflict between farmers and other land users in Ulanga

district started in 1995, and the magnitude increased significantly in 1999 when the influx of agropastoralists from other parts of Tanzania increased (UDC, 2003). These resulted into the increase in the number of cattle from 20 000 in 1988 to 106 000 in 2004 (Brehony *et al.*, 2004). Partly, a number of interventions were proposed and included restricting livestock entry, strengthening village resolution committees, providing services to pastoralists' community and educating the community. Despite these recommendations, little has been documented on implementation of the set regulations and conflicts are escalating. Therefore, this study was an attempt to analyse conflicts in Ulanga district and explore the entry points for collective action in conflict management for sustainable land use planning.

1.4 Justification of the Study

The government has been putting more efforts in resolving conflicts of different communities by creating more barriers between the groups in a community. Such approach has just seen to give a temporary solutions and leading to conflicts reoccurrence in the coming season or year. Analysing the conflicts and exploring the entry points for community involvement in resolving resources conflict will give lasting solutions for the problem. There are a number of policies and strategies that have been set previously to promote peace and social cohesion. For example, cluster three of the National Strategy for Growth and Reduction of Poverty emphasizes in promoting peace, social cohesion, national unity and political stability. MDG number seven seeks to ensure environmental sustainability, URT (2005), URT (1998) advocate involvement of stakeholders in Natural resource planning and utilization in order to avoid conflicts among them. URT (1997) warns against an increase in farmer-herder conflicts if free movement by pastoralists is not regulated.

The occurrences of conflicts between communities associated with land use necessitated this study to be undertaken. The result from this research highlights on reasons for conflict occurrence and proposes solutions for resolving them. The information forms a basis for informing various stakeholders and policy makers on ways of dealing with conflicts and will be useful for district management in designing land use plans, implementing interventions and participatory natural resource conservation in Ulanga District to enhance the sense of ownership among the stakeholders in the District. The established entry points will help in setting strategies in resolving conflicts and promoting sustainable land use in other communities with similar situations.

1.5 Objectives of the Study

1.4.1 General objective

The main objective of the study was to analyze collective action strategies in land use conflicts for sustainable land use planning and management in Ulanga District.

1.4.2 Specific objectives

The specific objectives of the study were to:-

- (i) Identify prominent land use types of land occupied by conflicting groups in Ulanga district
- (ii) Describe land use dynamics and migration patterns of conflicting groups in Ulanga District.
- (iii) Identify key factors for escalating conflict prevalence in the study area
- (iv) Identify formal and informal institutions for conflict management practices.

1.6 Research Questions

This study was guided to address the following research questions

- (i) Do the farming systems contribute to conflicts in the study area?

- (ii) How do changes in land use and migration patterns influence the magnitude of the conflicts?
- (iii) What are the main factors leading to land use conflicts incidences in the area?
- (iv) What are the formal and informal institutions that exist in the study area and what are their roles in conflict management in the area?

1.7 Theoretical Conceptual Framework

Conflicts most often occur in utilization of natural resources including land. The main issues are property rights and ownership patterns of the resources. With open access, common property always leads to conflicts (Walsh, 2004). Conflict management has therefore to be centred on the sources of land use conflicts. Collective action may be another useful technique for resolving and enhancing sustainability in development programs and natural resource management (Meinzen-Dick *et al.*, 2004). This include communal decision making, setting rules of conduct of a group and designing management rules, implementing decisions, and monitoring devotion to rules. Collective action is the easiest to identify and implement when there is clearly defined group that takes part (Ostrom, 1992).

In any given community there are a number of institutions that are given responsibilities to ensure peace and harmony in the community (Figure 1). Their actions and plans could result in either resolving or increasing conflicts. Individuals characteristics like age, gender, education levels of individuals and number of years one have stayed in a given community can help explain the association between conflicting groups (Table 1). However, factors like land use types, the size of land owned and migration pattern are the intermediary factors that should be considered during setting of entry points for resolving conflicts in a given community. The study is centred on the argument that, in order to

achieve peaceful and sustainable land use set up, a need arises to understand the causal relationships between the demographic and institutional factors, their influences on transmission mechanisms of the set regulations so as to come up with collective action in managing resources and having sustainable land use planning with minimal conflicts between groups in a community.

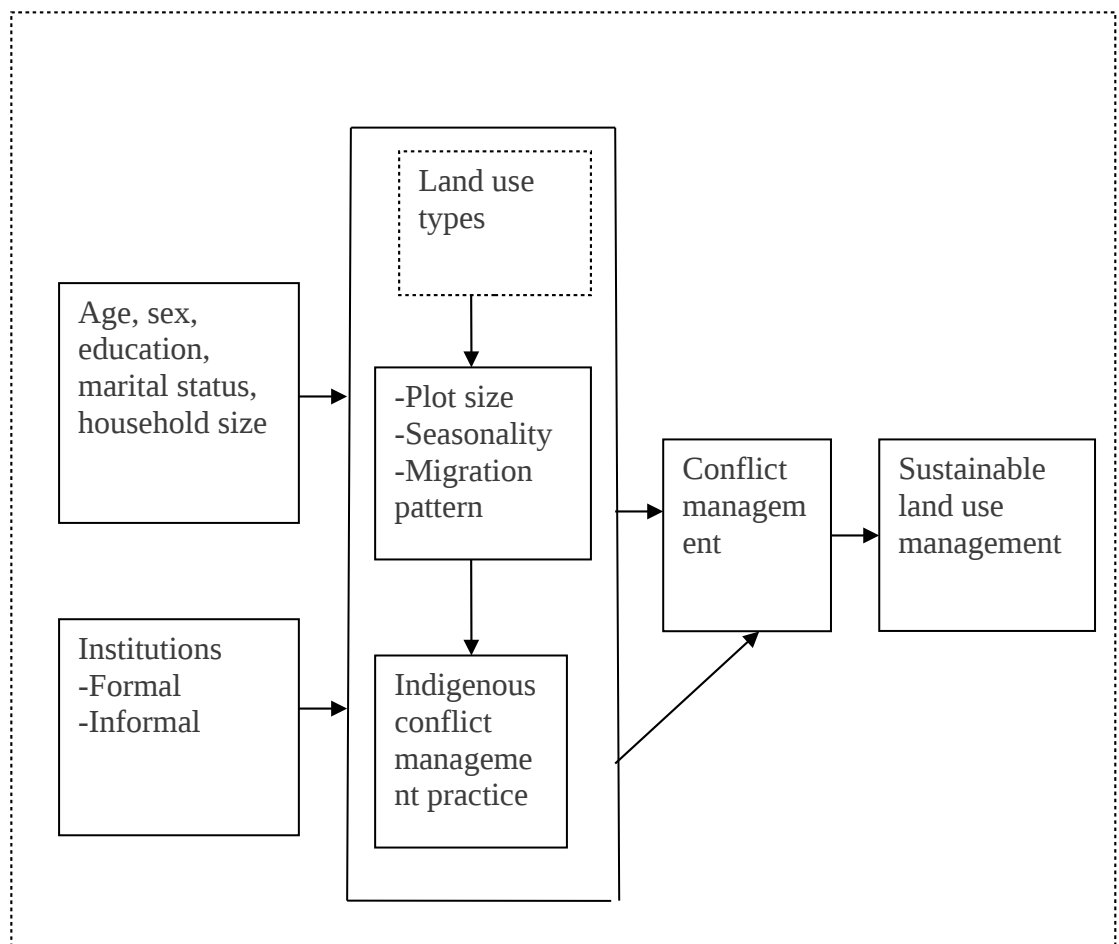


Figure 1: Conceptual framework.

Table 1: Definition of Variables

Variable	Operational definition	Indicators	Level of measurement
Age	Number of years of respondent	Years	Interval
Sex	Being male or female	Male or female	Nominal
Household size	Number of household members	Number of people	Interval
Education level	Number of years spent in school	Years	Interval
Marital status	Having or not having a wife or husband	Married or Single	Nominal
Occupation	Being a farmer or pastoralist in the study area	Farmer or pastoralists	Nominal
Conflicts	Number of conflicts incidences per month	Number of conflicts per period	Nominal
Migration status	Immigrant or native in the study area	Immigrant or native	Nominal
Land use types	Land related activities in the study area (acres)	Types of activities	Nominal
Land size	Number of acres owned or used	Acres	Interval

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Definition of Key Concepts

2.1.1 Conflict

Conflict is defined as an incongruity of goals or standards between two or more parties in a relationship, combined with attempts to control each other and antagonistic feelings toward each other (Fisher, 1990). The difference may exist in reality or may only be perceived by the groups concerned. However, the opposing actions and the aggressive emotions are very factual hallmarks of human conflict relationship, combined with attempts to control each other and antagonistic feelings toward each other (Fisher, 1990). According to CALD (2004) conflict is an active disagreement between people with opposing opinions or principles or fighting between two or more groups of people or countries. The potential for conflict exists whenever people have contacts and are organized into groups that seek a common goal and or compete for the same needs. Although only the most serious conflicts make headlines, conflict has negative connotations for many people.

There are several forms of conflicts and members of different institutions from family, friends and co-workers, face conflicts on all levels (Barker *et al.*, 1987). The incompatibility or difference may exist in reality or may only be perceived by the parties involved. Nonetheless, the opposing actions and the hostile emotions are very real hallmarks of human conflict. According to (Kriesberg, 1998), conflict has the probability for either a great deal of demolition or much inventiveness and positive social change. Therefore, it is indispensable to recognize the fundamental processes of conflict so that we can work to take full advantage of creative outcomes and minimize destructive ones.

2.1.2 Conflict management

Conflict management refers to the long-term management of intractable conflicts (FAO, 1998). It is the label for the variety of ways by which people handle grievances standing up for what they consider to be right and against what they consider to be wrong (Walsh, 2004). Those ways include such diverse phenomena as gossip, ridicule, lynching, terrorism, warfare, feuding, genocide, law, mediation, and avoidance. Conflict management means negotiated agreement using mechanisms and institutions that facilitate the participation of all stakeholders, especially the poorest. This requires coordinated action on a number of fronts (FAO, 1998). "Conflicts are rarely resolved easily. Most conflicts are managed as individuals work out differences" (Barker *et al.*, 1987). As we have seen, conflict has several positive aspects. However, conflict also is potentially destructive in groups when it consumes individual members' energies. However, conflict can interfere with group process and create so much interpersonal hostility that group members may become unwilling or unable to work with one another.

2.1.3 Collective Action

A collective action literally requires collectivity and an action. By a narrow sense, collectivity implies group work in which all the members are requested to participate and an action implies physical movement (Mwangi, 2006). Of course we can observe a lot of examples of this kind of collective action in natural resource management. However, this definition is too narrow to analyze peoples behaviour affecting the use of natural resource, because there are many different kinds of group behavior for natural resource management. In some cases there is a necessity to broaden the definition of collective action so that it covers most of important behaviours at community level (Meinzen-Dick *et al.*, 2004). Mortimore (1998) defines collective action as an realization taken by a group (either directly or in behalf through an organization) in pursuit of members perceived

shared interests. This include communal decision making, setting rules of conduct of a group and designing management rules, implementing decisions, and monitoring devotion to rules. Collective action is the easiest to identify and implement when there is clearly defined group that takes part (Ostrom, 1992). With respect to the collectivity, collective actions can be classified into three categories (Wright *et al.*, 1993).

A collective action is an obligation for all the members, and in this sense the three types of collective action are not different. But they differ in the following way. Type A, or Groupwork, requires all the members to participate and work together. Type B, or Organized work, does not require all the members to get together. But rather, only some of the members work at one time and the duty shifts in an organized way, for example, in rotation. Then type C, or Independent work, is the case where the obligation is clearly defined but the implementation is individual. The choice among the three partly depends on the type of work: for example, construction of irrigation canals may not be achieved if people work independently.

2.1.4 Land use planning

Land use planning is a long-term development or conservation of an area and the establishment of a relationship between local objectives and regional goals. Land-use planning is often guided by laws and regulations (Wright *et al.*, 1993). The major instrument for current land-use planning is the establishment of zones that divide an area into districts which are subject to specified regulations. Although land-use planning is sometimes done by private property owners, the term usually refers to permitting by government agencies. Land-use planning is conducted at a variety of scales, from plans by local city governments to regulations by federal agencies Obara and Jenkins (2006).

A major part of local planning is zoning, the division of areas into districts. Zones cover most potential uses, such as residential, commercial, light industry, heavy industry, open space, or transportation infrastructure (such as rail lines or highways). Detailed regulations guide how each zone can be used. As a result of pressures from rapid growth, some cities have begun to write growth management plans that limit the pace of growth Ostrom (1994). Comprehensive city plans aimed to limit the pace of growth have been accepted by the courts.

Very few plans have been undertaken at a statewide scale. Each state plan differs by the needs and philosophy of the state. The state plans represent a balance of regional structures that address widespread growth with local powers that keep specific decision-making at the local level (Lavigne *et al.*, 2002).

Environmental regulations are among the few national-level policies that have direct implications for land-use planning. Four of the major types of environmental laws that impact land-use planning are wetland laws, clean-air laws, clean-water laws, and laws for the protection of endangered species.

2.2 Review of Land Use Conflicts

2.2.1 Land use conflict in the world

Resource use conflicts is a central feature of many production systems, in particular the pastoral and agro-pastoral systems. These systems typically involve complex combination of resource users and uses, and different sets of rights and obligation for users. Land is a very important complementary for pastoral production systems (William, 1998). Because land is multiple use resource it is more liable to resource use conflicts. Various conflicts have been experienced in different parts of the world particularly India, Palestine and

Israel due to competition for land. These can enable a distinction of scarcity based or value based conflicts (Vedeld, 1996). The land use conflicts imply that the institutional framework that currently exist often fail to deal adequately with disputes and conflicts.

Land use conflicts in some parts of Africa could be tracked back to 1810 when the powerful Chiefdoms; Ndwandwe and Mthethwa were competing for land against other chiefdoms for their territories (Newmann, 1992; William, 1998). The ancient Kingdoms in South Africa fought each other due to land conflicts and caused serious displacement of people from their original empire to other countries e.g. Zwangendaba found the Ngoni Kingdom when Ndwandwe refugees were scattered in Tanzania, Zambia and Malawi after the Mfecane war (Hamilton, 1995).

In the mid-1990s various government and other agencies developed different theories of the causes of the conflicts and academics entered the fray, (Kikula *et al.*, 1996). In some cases, many citizens have been dispossessed of their properties, and this has resulted in landscapes of consumption rather than landscapes of production' (Neumann, 1992). The best approach to avoid these conflicts would include the identification and building of administrative or legal institutions, which would handle such claims, the principles for judging between opposing claims, as well as procedures for enforcement (Cousins, 2002). Most important approaches among the society may be appropriate forms of conflict mediation and resolution. (Mearns 1998; Hendrickson, Jeremy and Mearns 1998).

2.2.2 Land use conflicts in Tanzania

Tanzania is increasingly facing resource based conflicts mainly involving herders on one hand and farmers on the other hand. Such conflicts involving herders themselves (Intra-group), farmers or herders and investors have been reported in Morogoro, Mbeya, Arusha

and Mara regions were different groups live and lead conflicting livelihoods (Abdallah *et al.*, 2006). Land use conflicts are common phenomena in Tanzania and the world at large due to the fact that the land does not increase while the people and other living organisms that depend on it keep on increasing and hence seeking for resolutions of such conflicts is inevitable (Benjaminsen, 2006). Of recent, the process of globalization especially of capital has involved denying access and control over resources to people who need those resources most. This is much experienced and felt by different people in Tanzania but more tangibly by the majority small producers (peasants, pastoralists, artisan miners, hunters, and gatherers). Interference in land tenure systems might be a major source that has lead to such escalating conflicts seen now (URT, 1999). There have been four major milestones in the development of land tenure system in Tanzania. These are the pre colonial phase; colonial phase, the three decades of independence and the social economic liberalization phase (Tulahi and Hingi, 2006).

Other developments especially in the context of Arusha Declaration had enormous bearing on both land use plans and the rights to land of many Tanzanians (Tulahi and Hingi, 2006). Private properties were nationalised and the decision reinforced by enactment of the Land Acquisition Act No. 47 of 1967 to give more powers to the president to acquire land for National interests. From mid eighties, land use conflicts have assumed a different pattern by involving other actors than the state and small groups (URT, 1999). As the country opened up for liberalization, we have witnessed an influx of investors who are also interested on land. Large tracks are now being leased or privatized to local and foreign investors for commercial farming, ranching or mining activities (Phuntsok, 2000; Pfister, 2004; Hagalia, 2004). Allocation of such land has brought about serious tensions between local communities and the respective investors for either lack of adequate consultation or forceful eviction of communities without compensation. The recent

developments in the land tenure system where the new laws have been introduced are equally not reliable as the institutions established by these laws are yet to take shape in communities. It is thus imperative to devise concerted efforts among actors in making sure that reliable mechanisms are put in place to address the challenges of combating land use conflicts in Tanzania for the benefit of small producers (Porokwa *et al.*, 2004). Therefore a need arise of fostering collective actions towards resolving conflicts in the communities. A multi-disciplinary approach that would involve a number of stakeholders like civil societies, private sector and the government partnership is inevitable in this initiative.

Land use conflicts between pastoralists and farmers are now almost scattered all over Tanzania in the recent decades. The migration of pastoralists in various areas in Tanzania had long been highlighted as problem and proposal for extensive destocking had been drawn (Walsh *et al.*, 1997). Furthermore, policy issues, procedures and processes for establishing Wildlife Management Areas (WMA) are not clear to the community (Metcalf *et al.*, 1998; Hitchcock and Shauri, 1999). The National Lands Policy acknowledges the growing land and resource tenure conflicts caused by haphazard allocation and exclusion of the rangeland for large-scale agriculture (MLHUD, 1996). It proposes to guarantee the security of tenure in pastoral land responding appropriately such as gazetting, titling, and restoration of pastoralists land when they do not conflict with national interests (MLHUD, 1996). Property demolition and displacement occurring in these conflict areas deny many of their possessions and means of livelihood and hence increasing poverty level among those who are already poor (DILAPS, 2005).

2.2.2.1 Conflict management in the world

While the contribution of dry lands and their populations to national and global economies and values are understated, their potentials for livestock development, wildlife and

tourism, mining, solar and wind energy, etc. are clearly recognized (Anderson *et al.*, 2004). But the populations living in these ‘marginal’ areas continue to face declining social and economic conditions Swallow and McCarthy (1999). Most of the world’s drylands share similarities of low and variable rainfall (which introduces risk into life-supporting systems), fairly high social and natural diversity and striking consistency in the use of common property arrangements for resource management and access (Mortimore, 1998). The focus of the case study under scrutiny is on property institutions and their impact on range-resource use in agro pastoral societies. The relationship between *Conflicts and Cooperation over the Commons* 285 between transhumant herd managers or keepers and the communities having jurisdiction over the property-rights action-space where transhumant herds are grazing is emphasized. In the following sections, “herders” refers to transhumant herd managers or keepers passing through the land of a village practicing agriculture; “agriculturalists” refers to the members of the communities through which the “herders” are passing and their herds are grazing.

The focus on property rights and on range-resource use has several interesting characteristics. First, because land is a multiple-use resource, conflict may stem from scarcity and may also stem from different ways parties perceive how land should be used. This enables the joint analysis of scarcity-based conflicts and value-based conflicts. Second, while a majority of conflicts between transhumant herders and agriculturalists in western Niger are still resolved at the village level, the use of courts to resolve conflicts related to pastoral resource seems to be constantly on the rise (Ngaido, 1993). This seems to indicate that local conflict-resolution structures may be progressively losing the exclusivity to perform their function or that these structures may be undermined and thus rendered ineffective by forum shopping. Nevertheless, a lack of understanding of how

these local structures function is impeding its implementation (Ngaido 1993; Elbow 1996).

Gardner *et al.* (1994) revealed that, when analyzing the relationship between herders and agriculturalists, analysts need to take two key elements into account. First, land-tenure systems, governing the access and use of the range resource, must be analyzed. Secondly, the management of livestock mobility, which is a prerequisite to the existence of transhumant herds, must be analyzed (Ostrom, 1994). Because livestock mobility is, at least in part, a risk-management strategy (for example, Fleuret, 1986; Painter *et al.*; 1994; Swallow, 1994), its management can be seen as a form of social articulation of environmental risk.

While the regulatory structures of institutions are often assessed in terms of their ability to achieve a desired goal pertaining for conflict management, the normative and cognitive structures of institutions are very rarely considered (Jentoft, 1997).

2.2.2.2 Conflict management in Tanzania

Both population growth and increasing commodity production have led to the expansion of agriculture on formerly shared grazing land, and have increased tension and conflict between agropastoralists and farmers in many parts of Tanzania (Brehony *et al.*, 2004). Kilosa District has come to be known as an area of land scarcity, and some studies have indicated high potential for land resource conflicts (Misana, 1997; Brehony *et al.*, 2003 and Kisoza, 2007). Nowadays natural resource related conflicts are managed by the local community in various parts of Tanzania. In Kilosa land use conflicts have been managed by the local community but in some cases have failed to be resolved under community

Government (village conflict resolution committee) and thus referred to police and eventually to the court for judgment (Benjaminsen *et al.*, 2006).

2.3 Conflict mediation

Conflict mediation is a settlement of a dispute or controversy by setting up an independent person between two contending parties in order to aid them in the settlement of their disagreement (Van Gramberg, 2006). In international law, mediation is the friendly interference of one state in the controversies of nations. It is recognized as a proper action to promote peace among societies (Boulle, 2005 and Van Gramberg, 2006).

Much debate has focused on the distinction between conciliation and mediation, and no universal agreement has emerged (Boulle, 2005). "Conciliation" sometimes serves as an umbrella-term that covers all mediation and facilitative and advisory dispute-resolution processes. Neither processes determine an outcome, nor do both share many similarities. For example, both processes involve a neutral third-party who has no enforcing powers. One significant difference between conciliation and mediation lies in the fact that conciliators possess expert knowledge of the domain in which they conciliate (Spencer and Altobelli (2005). The conciliator can make suggestions for settlement terms and can give advice on the subject-matter. Conciliators may also use their role to actively encourage the parties to come to a resolution. In certain types of dispute the conciliator has a duty to provide legal information. This helps any agreement reached to comply with any relevant statutory framework pertaining to the dispute. Therefore conciliation may include an advisory aspect. Mediation works purely facilitative: the practitioner has no advisory role. Instead, a mediator seeks to help parties to develop a shared understanding of the conflict and to work toward building a practical and lasting resolution (Boulle, 2005).

Both mediation and conciliation serve to identify the disputed issues and to generate options that help disputants reach a mutually-satisfactory resolution. They both offer relatively flexible processes; and any settlement reached should have the agreement of all parties (Fratkin, 2003). This contrasts with litigation, which normally settles the dispute in favour of the party with the strongest argument. Van Gramberg, (2006) documented that, Mediation in the franchising sector and it signifies an ongoing commercial agreement between the contracting parties. The agreements usually have elements of an imbalance of bargaining power and business experience between the franchisee and franchisor; and the parties also face many external commercial pressures. All franchise agreements must have a clause that requires dispute resolution. Mediation in this field works because it can identify alternatives for the parties and then the parties can work together to solve the dispute (Van Gramberg, 2006).

For this type of mediation there are more formal procedures such as whoever wishes to initiate the mediation is required to advise the respondent in writing outlining the nature of the dispute and they will then have three weeks to agree to a method of resolving the dispute otherwise they may go to mediation (Brehony *et al.*, 2004). Suitable education and training for mediators becomes a complex issue largely due to the breadth of areas which may call on mediation as a means of dispute resolution. Debate ensues on what constitutes adequate training on the principles of mediation as well as what personal attributes an individual needs in order to effectively fulfill the mediator's role Spencer and Altobelli (2005). The educational requirements for accreditation as a mediator differ between accrediting groups and from country to country. In some cases legislation mandates these requirements; whilst in others they are set by professional bodies and applicants must comply prior to being accredited by them. Burton (1991) revealed that in Australia, for example, professionals wanting to practice in the area of Family Law must have tertiary

qualifications in Law or Social Science, undertaken 5 days training in mediation and engaged in at least 10 hours of supervised mediation.

2.3.1 Theories of Conflict Mediation

There is a distinction between conflict resolution, management and settlement. Management is 'by alternative dispute resolution skills' and can confine or limit conflict; settlement is 'by authoritative and legal processes' and can be imposed by elites. Burton (1991) suggests by contrast: conflict resolution means terminating conflict by methods that are analytical and that get to the root of the problem. Conflict resolution, as opposed to mere management or 'settlement', points to an outcome that, in the view of the parties involved, is a permanent solution to a problem (Ostrom, 1994). Conflict resolution means terminating conflict by methods that are analytical and that get to the root of the problem. Conflict resolution, as opposed to mere management or settlement points to an outcome that, in the view of the parties involved, is a permanent solution to a problem Burton, (1991).

2.4 Determinants of Land Use Conflicts

2.4.1 Determinants of land use conflicts in the world

Close to one billion people worldwide, depend directly upon the land for their livelihoods (Mortimore, 1998). Pastoral and sedentary production systems coexist in these areas and both very often use common property arrangements to manage access and use of natural resources. Despite their history of complementary interactions, pastoralists and sedentary farmers are increasingly faced with conflicting claims over land and other natural resources. (Kamara *et al.*, 2004; Goodhue and McCarthy, 1999). However, the intermediate cause of land use conflicts is believed to be deforestation, overstocking, population pressure and changes in land use practices. The root cause of conflict over land

- and of land degradation itself is people's inability to develop effective institutional frameworks for conflict resolution and for efficient and sustainable land use (FAO, 1998). Recent research in Burkina Faso, Niger and Ethiopia by Kamara *et al.* (2004) suggested that where there is sustained intra-group cooperation in natural resources management, the likelihood of individual appropriation is greatly diminished.

In a recent review of policy lessons from various studies on pastoralism in Eastern Africa and Asia, Fratkin and Mearns (2003) summarize the evolution of policy. Earlier development policy for pastoral regions held one view in common: that rangelands were suffering from degradation caused by overgrazing of increasing numbers of domestic animals. Though available, technological options to combat this problem were seen as constrained by pastoralists' traditional and social systems, in particular the tendency for communal tenures and livestock mobility. Individualization and controlled stocking were the preferred solutions of many large-scale interventions. Degradation was not halted, livestock numbers did not decline and individualization resulted in loss of rights for vulnerable groups and individuals. It increased stratification and inequalities in pastoral societies. Individualization weakened established norms and rules for the regulation of pasture use, and opened up customary land to non-traditional users who were not tied by those customary norms and rules.

2.4.2 Determinants of land use conflicts in Tanzania

Unfortunately, Tanzania has recently seen an upsurge in land use conflicts on several fronts. The country has witnessed repeated conflicts between pastoralists on one hand and farmers on the other in Ngorongoro, Kilosa, Mbarali and Kilombero Districts (DILAPS, 2005). According to DILLAPS (2005) land-use conflicts in Tanzania emanates out of: (i) a combination of issues in providing and guaranteeing land tenure security; (ii)

ineffectiveness of the land administration structures and institution; and (iii) the performance of the land administration infrastructure and human resources. In other words, most land-use conflicts and disputes are avoidable if a society of informed stakeholders is created (Kisoza, 2007).

Because small group communication acts as a system, no single variable operates in isolation. A change in one variable may produce changes in others. Because the system is continuously changing, a small group could possibly experience more than one type of conflict simultaneously (Knutson and Kowitz, 1977). In broad sense, primary causes of farmer-pastoralists conflicts in Tanzania are demographic, economic, institutional and technological Kideghesho and Shemweta (2000). In order to make decisions best to both farmers and pastoralists on how mediate these conflicts, genuine factors and sources of these problems must be identified. However it was recently documented by Kisoza (2007) that, the main resource use conflicts determinants in different pastoral and agro-pastoral systems of Tanzania are not well known.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Overview

This chapter contains eight sections. Section one contain description of the study area, section two describes land climate and vegetation, section three highlights about administration and demography, section four explains major natural resources that are found in Ulanga, section five describes research design and data collection procedures, section six is about sampling strategies and sample size, section seven gives an overview on methods of data collection and finally section eight highlights on data processing and analysis for the study.

3.1.1 Description of the study area

This study was conducted in two divisions namely Mtimbira and Malinyi, both located adjacent to Kilombero Game Controlled Area (KGCA), Ulanga District, Morogoro region. Ulanga district is located between 08°40'S and 036°10'E in Morogoro region (Figure 2). KGCA is located between Udzungwa Mountains and Mahenge escarpment, which form part of the Eastern Arc Mountains. The district headquarters (Mahenge town) is located 312 kms from Morogoro town. KGCA covers a total area of 4000 km² which is within Kilombero valley.

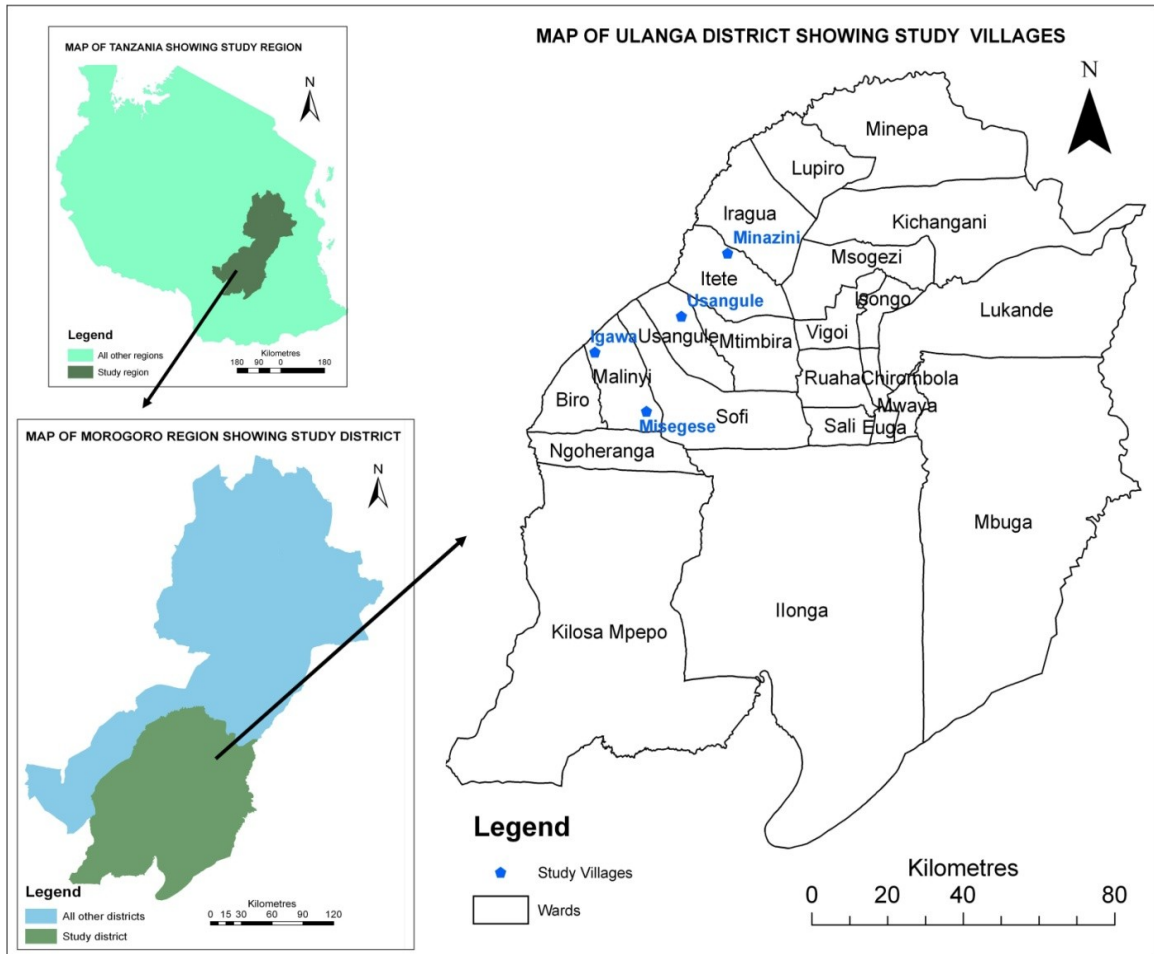


Figure 2: The map of Ulanga District showing the study area

3.1.2 Land climate and vegetation

Ulanga is characterized by loam, sand and clay soil with a high fertility that favours growth of various species of plants. These characteristics coupled with availability of different sources of water such as ponds and permanent rivers make it very potential for agriculture and pastoralism activities.

Ulanga has a total area of 24 560sq kms, out of this 50 000ha is used for agriculture, 18 320sq kms for game reserve and 6680ha for forest reserves. Since 1995 there has been dramatic conversion of the arable land into grazing land for livestock in the lowlands.

These have resulted into escalation of land use conflicts due to competition for access to land.

The temperatures in Ulanga ranges between 22^o to 41^oC and the mean annual rainfall ranges between 1000 – 2000 mm Amani (1996). The area is characterized by mountainous terrain with plateaus of various heights such as Sali and Mahenge plateaus. Lowland area is located in Mtimbira, Lupiro and Malinyi divisions in the Kilombero flood plain Ramsar site. It is dominated by various species of vegetation including; Miombo woodlands, shrubs, baobabs and recently established teak plantations.

3.1.2.1 Agro ecological zones

The district is categorized of the following Agro-Ecological Zones-

(i) Highland zone

This covers Vigoi division and some parts of Mwaya division particularly the Sali ward with an altitude of about 1300-1500metres above sea level. It is characterized with *calcimorphic* soils with high organic matter and moderate total nitrogen. Have medium levels of calcium and Magnesium and low levels of potassium. Main crops are maize, beans, cassava, pigeon peas and bananas.

(ii) Mid altitude zone

This covers some parts of Vigoi and Mwaya divisions. This zone is very fertile and the main activity is crop production. Lowland and upland rice, maize, cassava, sweet potatoes, beans and pigeon peas are the main crops. It is 1200 m above sea level and is dominated by clay soil for both top and sub soils.

(iii) Lowland zone

This covers some parts of Mwaya along the Ruhombero river and most of the Lupiro, Mtimbira and Malinyi divisions along the Kilombero river. It is characterized by *montimorilonitic* clays, sand and *hydro orphic* soils. The main crops are maize and rice however minor crops like cassava, banana and cotton are grown. This zone is also very potential for livestock production. About 95% of the livestock herds are kept in this zone and it covers 80% of the whole district.

3.1.2.2 Land use

Ulanga district has a total area of 25 560sq kms, out of this 50 000ha is used for agriculture, 18 320sq kms for game reserve and 6680 for forest reserves. A large proportion of the land had been reserved for game sanctuary (Table 2). Since 1995 there has been dramatic conversion of the arable land into grazing land in the lowland zone. This has resulted into escalation of land use conflicts due to competition for access to land.

Table 2: Different uses of land in Ulanga

Land uses	Hectares
Arable land	994 000ha
Land under cultivation	50 000ha
Game sanctuary	18 320sq kms
Forest reserves	6 680ha
Total	24 560sq kms

Source: Ulanga District Council

3.1.3 Administration and demography

Administratively, despite of its large coverage Ulanga has few population and administrative units. It is divided into 5 divisions, 24 wards, 65 villages and 308 hamlets. Population in Ulanga is scattered but some wards are highly populated due to existence of natural resources such as forests, and game reserves that hinder people to upscale their farms for various economic benefits. Most of the population is concentrated in small

towns around the division headquarters and in Mtimbira and Malinyi divisions. This population increase has been attributed to the availability of good pasture and fertile land for livestock grazing and rice cultivation respectively. The annual growth rate is estimated at 2.4 percent being slightly lower than the regional average of 2.6 percent (URT, 2006).

3.1.4 Major natural resources

The district is endowed with various natural resources potentials that attract people to come in for tourism activities, exploiting minerals, fishing and lumbering for business purposes. Despite of their economic benefits, wild animals pose problems to the community when they destroy crops, prey domestic animals and injure people during the cropping season. Various natural resources are available in different parts of the district and various initiatives of exploitation of the same are underway to boost the district revenues. The major natural resources are forest trees, land for agriculture and pasture, mineral deposits, wild animals, natural ponds and rivers.

3.1.4.1 Forestry

There are natural and established forests that cover an area of about 6,680 hectares. The district is endowed with hard wood and soft wood forests. A substantial amount of timber is transported outside the district to Morogoro town and Dar es Salaam. Honey and bee, wax, bamboo artifact and bio-diversity are also abundant natural resource products for cash and for local consumption (Amani, 1996). Common tree species include *Dalbergia melanoxylon* (mpingo), *Pterocarpus species* (Mninga, Mkula, Mninga maji), *Azelia quanzensis* (Mkora, Mkongo, Mfuru) etc. Extensive timber harvesting and poor afforestation initiatives have caused a continuous decline of hardwood tree species in the area.

3.1.4.2 Minerals

Different mineral deposits are found in Vigoi, Lukande, Itete, Sofi, Ruaha and Sali wards in the district. Artisanal mining is dominant for Ruby, gold, spinel and red garnet; however mining companies like Interstate Mining ltd and Santa Diana have recently entered the industry at Epanko village. Other mineral occurrences include chalk, limestone, graphite and marble found in Vigoi Division (Amani, 1996).

3.1.4.3 Wildlife

There are several natural ponds and permanent rivers that account for a large amount of fish for local consumption and for business outside the district. The main fishing camps are located along the Kilombero River and its tributaries. Wild animals are found all over the district and they serve as tourist attractions and source of meat during tourist hunting. Dominant animal species include elephants, hippos, buffaloes, gazelle, crocodiles, puku antelopes, zebras, and lions.

3.2 Research Design

Cross-sectional research design was employed during data collection. Data were collected at a single point in time. The cross-sectional research design was employed for data collection both qualitative and quantitative due to resource limitation in order to reduce costs (Bryman, 2004; Saunders *et al.*, 2003). Instruments used for collecting information and data were structured questionnaire and interview (Appendix 1, 2 and 3). This method involved collection of information by asking questions to a representative sample of the population at a single point in time. The design was found to be more appropriate for this study taking into consideration the mobility and spatial arrangement of the agropastoralists and farmers in the area.

3.3 Research Phases

3.3.1 Qualitative data collection

This phase include collection of data from key informants and focus group discussions. It also involved pre-testing of questionnaire to check its relevance and correction respectively. Pre-testing of the questionnaire was carried in Lupiro and Minepa villages.

3.3.1.1 Focus Group Discussion

Five samples of FGD were involved in each for the exercise. Village key informants were used in identifying key people for focus group discussions. Purposive sampling was employed in obtaining respondents. They included 3 influential aged people, 2 village leaders and 3 youth. Participant in FGDs were invited two days in advance where a focus group sessions were conducted in each village. All participants seated together in a form of round table discussion. The researcher and research assistants conducted the discussion. The researcher was the moderator while the research assistants assisted in recording the discussions. FGDs commenced with the introduction made by the researcher. Kiswahili language was used in the discussion. Each FGD was held for about two to three hours.

3.3.1.2 Key informants

Several key informants were used in this research including District Council officials, village leaders, court magistrate officers and police officers. All these had a role to play in providing relevant information crucial for this study. District officials played a key role in providing introduction letter to the village leader to introduce the researcher. They were also used in providing secondary data about conflicts. Village leaders participated in FGDs and in providing names of each participants and they also assisted in locating the sampled villages. All Key informants were purposively selected depending on their position.

3.3.2 Quantitative Data collection

Quantitative data was obtained by using questionnaire survey in the four villages. A structured questionnaire constructed with both open ended and closed questions was used to obtain quantitative data from the sampled respondents. The questionnaire was pre-tested in two villages of Ulanga District council four days before carrying out main study and necessary adjustments and corrections were made before its final administration.

3.3.2.1 Data collection for objective one

This aimed at capturing the prominent land use types in the area, land tenure system, total land owned and plots possessed by each household. This stage also probed to get information on the prevailing farming systems and their effects on land use conflicts between farmers and agro-pastoralists. Focus group discussion was conducted in some selected community members in order to probe some information from them that could have not easily captured in the questionnaire survey. A group of eight females and eight males was formed by community members with equal representation regarding age, sex.

3.3.2.2 Data collection for objective two

The data collected for objective number 2 were on how the land was used in the past few years up to the time of data collection and the effects of immigrants over the use of the land. In this case a structured questionnaire and FGD were used. The guiding questions aimed at obtaining information like; how does land use pattern and migration contribute on the magnitude of the land use conflicts in the area? What were the causes of the conflicts, when did the pastoralists started invading farmer's areas? How did the farming system change after the coming of the agro-pastoralists? How the residents feel about the prevailing farming system nowadays?

3.3.2.3 Data collection for objective three

The third objective intended to analyze key factors for conflict incidences over the use of the land by farmers, agro-pastoralists, KVTC and Wild footprints Ltd in the study area. This was guided by; what are the key factors that lead to land use conflicts incidences in the area? Data for this objective was collected for both the focus group discussion, key informants and by using the questionnaire survey. A structured questionnaire was the main tool for data collection for this objective. FGD information complemented on the information obtained through questionnaires.

3.3.2.4 Data collection for objective four

Collection of data for this section focused on identifying the formal and informal institutions for conflict management practices in the area. A structured questionnaire and FGD were used to gather information from farmers and agro-pastoralists. During FGD information on knowledge and perception of respondents relative to presence of institutions for conflict management were collected. General information on types of institutions, procedure in setting rules and regulations on resource use and conflict resolutions were collected. A questionnaire also was used to collect types of institutions present, and their roles in the community.

3.4 Sampling Strategies and Sample Size

A multi-stage sampling procedure was employed to obtain study sample at different stages like District, ward and village level. Two divisions namely Mtimbira and Malinyi were purposively selected because they are bordered by Kilombero Valley an area with higher incidences of conflicts between farmers and agro-pastoralists. From each division one ward in Malinyi and two wards from Mtimbira divisions were randomly selected. From each selected ward (Itete, Usangule and Malinyi), two villages were randomly picked from

Malinyi, one each from Itete and Usangule wards. The four villages are characterized by big household size and high population due to high influx of agropastoralists and polygamy among the society.

Table 3: Sample size and sapling intensity

Village	Number of Households	Sample size	Sampling intensity %
Minazini	860	30	3.5
Usangule	1228	30	2.4
Misegese	1056	30	2.8
Igawa	523	30	5.3
Total	3667	120	14.0

In each selected village, 30 households were randomly selected for interview. The ratio of farmers and agro-pastoralists was not very much considered as it was revealed that all pastoralists were also potential farming group. The majority of pastoralists were found keeping livestock doing agriculture activities in the area and therefore the majority were agro-pastoralists. The total sample size was therefore 120 households picked randomly from the study area.

3.5 Methods of Data Collection

3.5.1 Primary data

Primary data were collected using a structured questionnaire from farmers and pastoralists and key informants (like local leaders, extension staff, ward and village government leaders). Following pre-testing and modification, a structured questionnaire was employed in collecting primary data. The key informants were interviewed guided by questions in a prepared checklist. Responses from the respondents guided by a checklist were also recorded during the Focus Group Discussion (FGD).

3.5.2 Secondary data

Secondary data for this study were obtained by reviewing literature at Sokoine National Agriculture Library (SNAL) and other sources such as District Executive Director's office-Ulanga, Kilombero Valley Teak Company office, police station at Malinyi and Mtimbira, primary court, Ward Executive Officers etc.

3.6 Data Processing and Analysis

Data collected from this study were summarized, coded and analysed to obtain descriptive like frequencies, means, and standard deviation for answering the research objectives. Information from checklist, and FGD were summarized and used to explain the phenomenon under study. That is, the Qualitative data obtained from PRA, focus group discussion and key informants was analyzed using content analysis in conformity with the objectives of the study. In content analysis the recorded information was organized into meaningful statements that linked the facts to the quantitative data. In this study care was taken to interpret the qualitative data and see if they contain facts that conform to the closed and open ended questions in the questionnaire survey.

Similarly, quantitative data collected were analysed to obtain descriptive statistics particularly frequency, percentage and mean for answering specific objectives. Chi-square test was employed to determine if there are any associations between variables influencing conflicts in the study area. A General Linear Model was used to determine the degree of association as described in the model hereunder:-

The logistic regression model was used in the analysis to predict the likelihood of conflicts to occur and the model for the explanatory variables was as follows:-

$$\text{Ln} (Y_i/1-Y_i) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots, \beta_n X_n + e$$

Where,

Y_i = The likelihood of conflict occurrence (1 Has effect on conflict incidences
=0 if otherwise)

β_0 = Slope (constant)

β_i = Coefficients for independent factors

X1 = Age of respondent in years

X2 = Education (number of years in school) 1=educated, 0= otherwise

X3 = Respondent category (1=Farmer, 0= otherwise)

X4 =Marital status (1=married and 0= otherwise

X5 =Family size (1=large family size; 0= otherwise)

X6 = Land size in (acres) 1=small family size; 0= otherwise

X7 =; Origin = (1= Native; 0= Otherwise)

e = Error term

CHAPTER FOUR

4.0 RESULTS AND DISCUSSION

4.1 An Overview

This chapter consists of six main sections. Section one describes socio-demographic characteristics of the respondents while section two contains discussion on Land Acquisition and Land Use Types in Ulanga district, and section three is on Land Use Dynamics and Migration Pattern in Ulanga district. Section four gives a detailed discussion on land use Conflicts in Ulanga District, while section five contain highlights and discussion on formal and informal institutions for conflict management and lastly fostering collective action for conflict management.

4.2 Socio-Demographic Characteristics of the Respondents

The socio-demographic characteristics of the respondents were as shown in Table 4.0.

4.2.1 Sex of the respondents

A total of 120 respondents were involved in the study. Out of these, 79.17% of the respondents were males and 20.83% were females (Figure 2.0). Similarly, Table 4 shows the proportion of males and females across villages. However in Minazini village there were low male's proportion compared to the other villages. This could be due to the presence of casual labour opportunities at KVTC, where male youth from Minazini were engaged as the main beneficiaries, and hence high rate of male out migration to other places searching for employment as observed in other villages. During the FGD, it was also revealed that males' proportions remaining in the village depended on the potentiality of the villages such as land fertility, business opportunities, types of crops grown and other activities that give economic returns for their households. When such potentials miss

they tend to move to other places searching for such opportunities leaving back their families.

Table 4: Background characteristics of Respondents

Characteristic	Villages				Total N=120
	Minazini n=30	Usangule n=30	Misegese n=30	Igawa n=30	
Sex of respondent					
Male	73.3	86.7	80.0	76.6	79.17
Female	26.7	13.3	20.0	23.3	20.83
Marital status					
Married	93.3	96.7	93.3	96.7	95.0
Single	6.7	3.3	6.7	3.3	5.0
Age of respondent					
20-35 years	32.3	32.3	17.9	36.7	30.0
36-51 years	41.9	41.9	53.6	50.0	46.7
52-67 years	9.7	25.8	28.6	10.0	18.3
Above 67 years	16.1	0.0	0.0	3.3	5.0
Household size					
1-3 people	3.3	13.3	13.3	16.7	11.7
4-6 people	33.3	40.0	50.0	30.0	38.5
7-9 people	23.3	30.0	26.7	43.3	30.8
10-12 people	40.0	16.7	10.0	10.0	19.2
Average H/H size	7.9	6.3	6.1	6.73	6.76
Migration status					
Local	56.7	46.7	46.7	43.3	48.3
Immigrant	43.3	53.3	53.3	56.7	51.7
Education level					
No formal education	55.3	64.4	54.1	60.0	58.3
Std I-IV	18.4	16.2	22.0	12.7	17.4
Std V-VII	21.4	18.1	22.6	24.8	21.7
Secondary	4.9	1.2	1.3	1.8	2.5
Higher education	0.0	0.0	0.0	0.6	0.1
Main occupation					
Farming	64.5	48.4	32.1	40.0	46.7
Farming and off farm	9.7	0.0	28.6	10.0	11.7
Pastoralism	22.6	51.6	39.3	50.0	40.8
Agropastoralism					

4.2.2 Marital status

In Table 4, the results show that majority (95%) of the respondents were married. Despite of the large number of respondents got married, there were very minor variations in proportion across the villages. However, there were no statistical differences across villages on marital status with chi-square value of 0.79 which was not significant at $P < 0.05$. In Igawa and Usangule the proportion of married people was slightly higher compared to Minazini and Misegese villages. This implies that, the majority of the respondents were 20 years and above they were likely to be married as most of them were matured.

4.2.3 Age of the respondents

From Table 4, majority of the respondents were at the age ranging between 36-51 years. During FGD, it was revealed that, most of the youth at the age 20-35 years have shifted to towns to seek employment and some of them already have their own enterprises in town compared to those who are at the age group of 36-51 years who most of them had land and thus occupied by agricultural responsibilities instead of moving to town or other places searching for employment (Fig. 3).

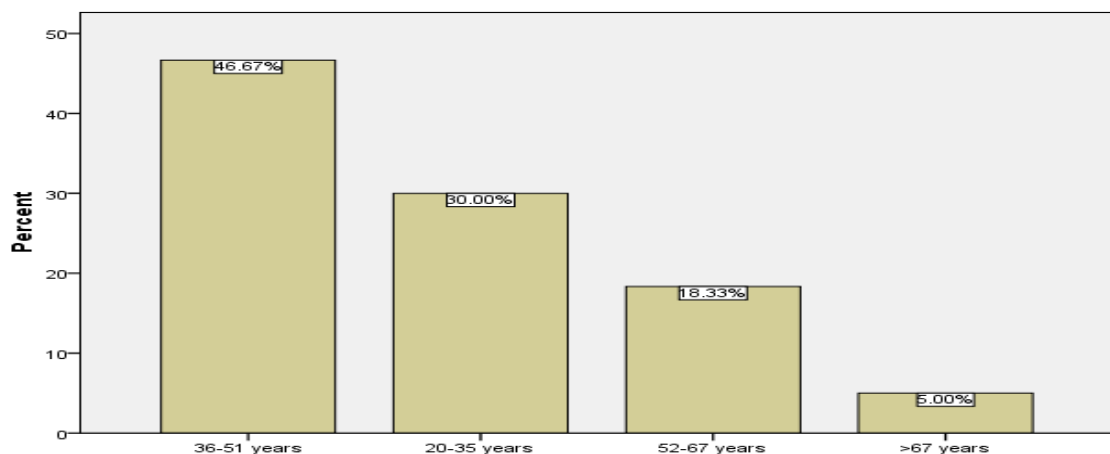


Figure 3: Age structure of the respondents in years.

The study revealed further that respondents ranged from a minimum age of 20 years to a maximum of 80 years. Mean age was found to be 43 years with a standard deviation of 13.6. The age group of 36-51 years was the highest (46.7%) in the study area, while the age group above 67 years had few (5%) people. Across the villages, the findings indicate that most of the respondents were under the economic active age group of 36-51 years. The trend under this age category (36-51 years) also varied across the villages where Misegese had the highest (53.6%) proportion compared to Minazini and Usangule which both had 41.9% of the respondents under age category of 36-51 years. However, Minazini village also had more respondents (16.1%) aged above 67 years compared to other villages. These results should however be interpreted with caution because respondents in this study were not necessarily heads of households as in absence of the household head, other person (e.g. wife) at the household was interviewed on behalf.

4.2.4 Household size

The results show that the household size ranged from 2 to 12 people. It was revealed that in the surveyed households, 11.7% had 1-3 people, 19.2% had 10-12 people, 30.8% had 7-9 people and 38.3% had 4-6 people (Fig. 4). However, the mean household size for the households surveyed were 6.76 people, (Table 4) relatively higher compared to the national average household size of 5.1 people in rural areas (URT, 2002; URT, 2006). Across the villages the results however showed that Minazini had higher average household size of 7.9 people, followed by Igawa, which had 6.73 while Usangule had 6.3 and Misegese had 6.1 people. The reason of these trends as revealed during focus group discussion it was attributed by Agro-pastoralists who contribute more than half of the families in the study area.

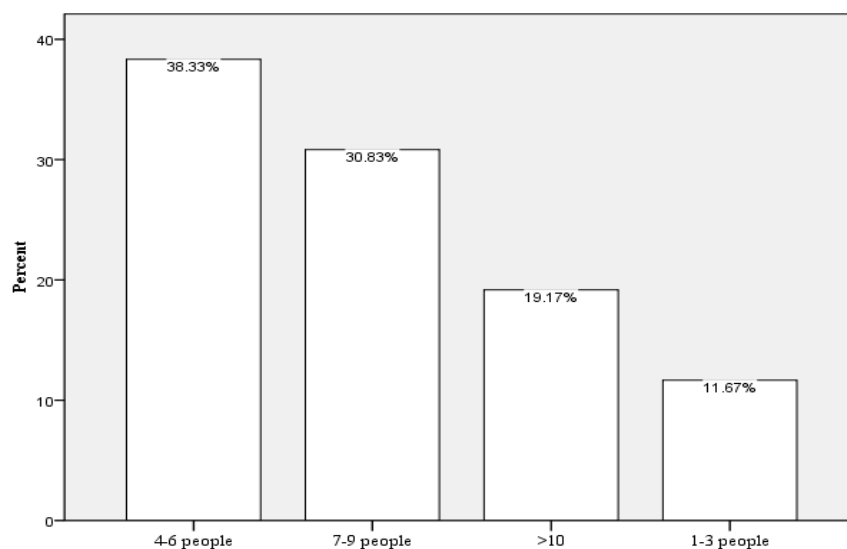


Figure 4: Household size.

The results further showed that, more than 50% of the agropastoralists households had 7-9 and more than 10 members, respectively. Generally it was revealed that agropastoralists had the biggest family compared to other occupational types. The results were statistically significant at $P < 0.05$ and highly associated between occupation and household size (Table 4). This implies that, agropastoralists had highly contributed to larger household size in the study area (Table 5). Agro-pastoralists normally prefer extended families than nuclear families for labour purposes in their daily economic activities such as agricultural and livestock rearing activities and thus family planning to them is highly discouraged. These findings agree with Abdallah *et al.* (2006) who concluded that most agro-pastoralists had enough resources to manage higher family size or they needed large family size to meet demand of pastoral jobs including security, which were regarded to be labour intensive compared to farming activities.

Table 5: Household size and occupation

Main occupation	Categories of household size				Total %
	1-3 people	4-6 people	7-9 people	>10 people	
Farming	42.9	60.9	43.2	26.1	46.7
Farming and off farm	14.2	15.2	5.4	13.1	11.7
Pastoralism	0.0	0.0	0.0	4.3	0.8
Agropastoralism	42.9	23.9	51.4	56.5	40.8
Total	100.0	100.0	100.0	100.0	100.0

Chi-square=15.9, p=0.007

4.2.5 Origin of the Household Heads

The study revealed that there were eight ethnic groups, but three of them were coming outside Morogoro Region. It was further noted that 51.7% of the respondents in the study area were immigrants while 48.3% of the respondents were natives (Figure 5). The proportion of people in all the four villages showed very minor variation (Table 4). Igawa had a highest number of immigrants, while Minazini village had the lowest value and Usangule and Misegese had equal proportions. This may be contributed to the fertile land and adequate water availability for agriculture and livestock.

Furthermore, the study through focus group discussion revealed that most of the immigrants came as agro-pastoralists. These immigrants were reported to invite other fellows who were also looking for suitable land for agriculture and for pastoral activities.

As one member quoted saying that;

“I am Msukuma and I came to Ulanga District in 1997 after having been informed by my friend who discovered that the area was suitable for livestock keeping and crop production and there was a village land which was being distributed to immigrants at free of charge. Therefore, I decided to come here and then after one year I went back

home to collect other members of my family and properties including livestock to this new settlement” (Middle aged male from Igawa village, Bomani Ngelela).

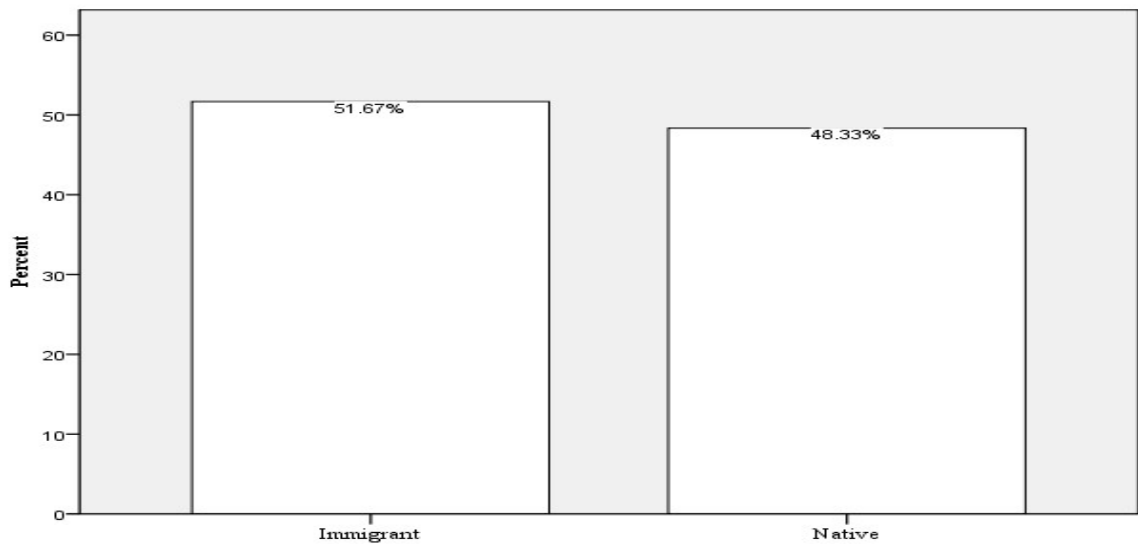


Figure 5: Residential status of the respondents.

4.2.6 Education level of Household members

The respondents were asked to list the total number of household’s members currently residing in the household and their level of education. This was done so as to come up with a real picture on education status of the entire community in the study area. The results in Table 4 shows that majority (58.3%) of the residents in households surveyed had no formal education, 21.7% of household members attained standard seven, 17.4% attained standard four, and only 2.5% and 0.1% of the household members attained secondary and higher education, respectively. These results indicate that there is high rate of illiteracy in the study area. This situation may be attributed by the Agro-pastoralists’ households which normally are mobile and put more emphasis to their children to engage in livestock rearing and crop cultivation rather than going to school. However across the villages the result showed that there was a higher rate of illiteracy in Usangule village,

followed by Igawa, Minazini and lastly Misegese. From the observation, these variations were also attributed by the distance of the households from the schools as those who were far from schools seemed not been either enrolled or enrolled but not attending schools. This might be also due to the fact that, more agropastoralists were interviewed compared to the indigenous farmers. However most of the agro-pastoralists in Mtimbira and Malinyi divisions in Ulanga District are marginalized and they are not interested in attending school. However, there were no statistical differences between village on literacy levels with chi-square value of 18.1 which was not significant at $P < 0.05$. An almost similar study conducted by Tsoxo, (2006) in Kilosa revealed that, more than 36% of the respondents in the pastoral society were illiterate due to frequent mobility and marginalization (Fig. 6)

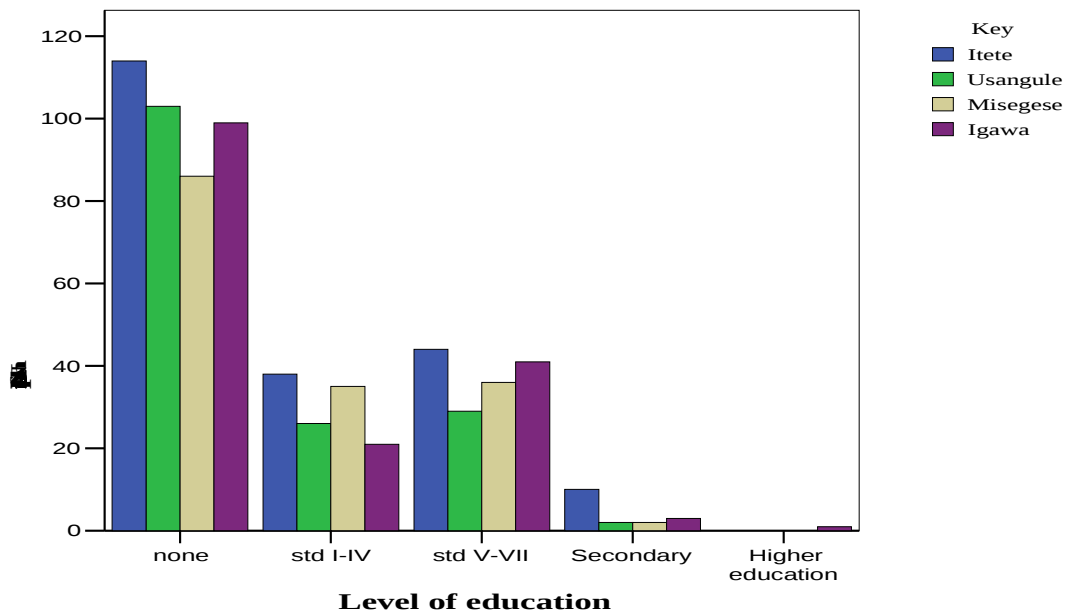


Figure 6: Education level of Household members

The illiteracy levels observed might have been impairing decision making of the household members and ultimately could be implicated to perpetuate the conflict incidences in the entire society. Education makes people aware on issues such as grazing in others crops fields and KGCA which ultimately lead into conflicts between livestock keepers and farmers and or Wild Footprint Ltd which is licensed to manage the KGCA. As one standard four leaver respondent quoted saying that;

“because of poor knowledge among the agropastoralists on land use such as environmental conservation issues due to overstocking and poor cultivation system when told on the reality do react negatively and thus conflict resolution management becomes so difficult as they assume that those who own no livestock do not like them because of the wealth they have without putting into consideration the issue of environmental degradation”. (Masuluzu Tungu aged 68)

According to Mwansasu (2001), education level is a factor that may either facilitate or hinder access to information. He added that a person with higher level of education has also an ability of grasping information received by him or her and evaluate its effects before decision.

4.2.7 Main occupation of Household head

The study revealed that closer to half (46.7%) who were household heads, indicated that their main occupation was farming, followed by Agropastoralism (40.8%), farming and off farm (11.7%), while those who were engaging with pastoralism *per se* were only 0.8%. This implies that crop production and livestock keeping are the main economic activities in the study area.

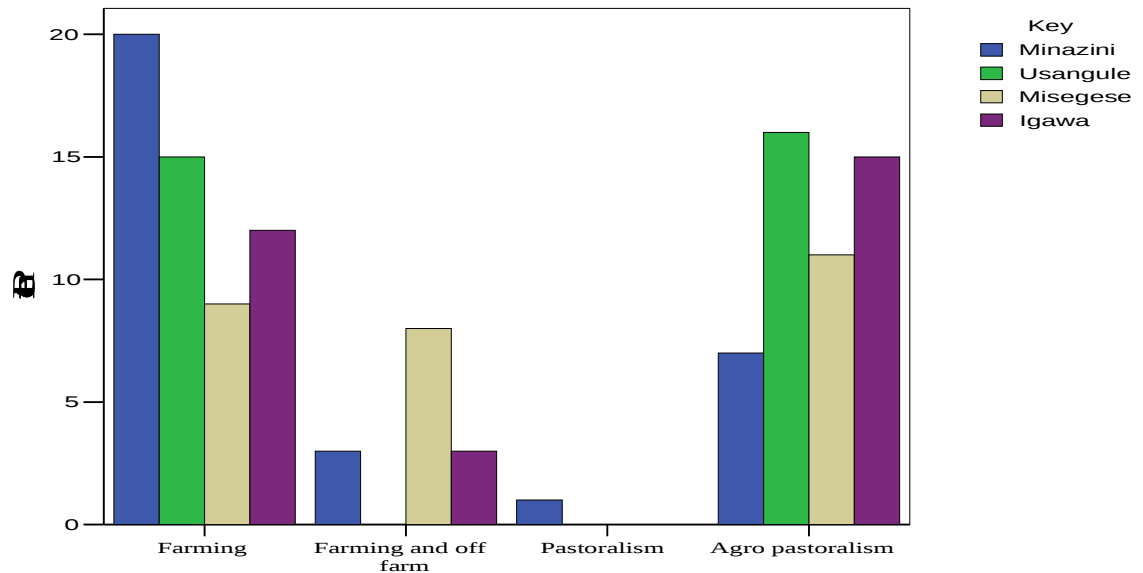


Figure 7: Occupation of respondents

When the data was tested across the villages, Minazini village presents the highest proportion of farmers and just a fraction accounted for pure pastoralist. Igawa and Usangule villages represented the highest proportion of agropastoralists in the area. The proportions of farmers and agropastoralists do not indicate a remarkable variation across the villages (Table 4). In Usangule village, it was noted that both agro-pastoralism and farming accounted for 51.6% and 48.4% respectively. This may be partly due to abundant water and pasture along the Furuwa and Rwasesa rivers in Igawa and Usangule villages respectively that make it favourable for livestock production and crop production. The absence of pure pastoralists indicates that the pastoralists have transformed themselves into agropastoralists to exploit the available potential for crop production (Fig. 7). The differences in occupations between villages were found to be statistically different at $P < 0.05$ with a chi-square value of 21.3. The big household sizes among agropastoralists gives an advantage of being assured of enough family labour to produce food by growing crops to meet households' nutritional needs. In Minazini village the shrinkage of the land

due to the KVTC and the WFP Ltd has forced the community members to engage in pure crop production and also the agropastoralists find it better to settle in Usangule and Igawa where land is not heavily exploited.

It was also reflected in the focus group discussion that, both farmers and agropastoralists practice shifting cultivation and grazing respectively. Mono cropping is common among the purely farming communities and some of them tend to fallow the land to avoid increased weed seed bank and depletion of soil fertility. However, agropastoralists prefer individual and communal ownership of land while farmers prefer private ownership for future use by other household members. It was revealed that the shifting cultivation has caused the farmers to infringe the grazing land and in the course of livestock rearing they come into the farms. The potentiality of the area to crop production has caused encroachment of the reserved land and thus causing land use conflicts escalation.

4.3 Land Acquisition and Land Use Types in Ulanga District

In this sub section land acquisition, number of plots owned for crop production and number of plots owned by ethnicity as well as the total land size owned by the respondents and the prominent land use types were assessed and are discussed hereunder.

4.3.1 Land acquisition

The study investigated the ways in which the land was acquired by the residents in the area understudy. As shown in Table 6, the study revealed that majority (60.8%) of the respondents had acquired land for uses through the village government, while 25% of the respondents inherited, 8.3% of the respondents either borrowed or hired and only 5.8% of the respondents purchased the land. These results indicate that village governments were having full mandate on land allocation and distribution to their people in the study area.

Table 6: Land acquisition

Land acquisition	Villages				Total %
	Minazini %	Usangule %	Misegese %	Igawa %	
Inherited	16.7	16.7	30.0	36.7	25.0
Purchased	6.7	6.7	6.7	3.3	5.8
Allocated by Village	63.3	70.0	50.0	60.0	60.8
Borrowed/hired	13.3	6.7	13.3	0.0	8.3
Total	100.0	100.0	100.0	100.0	100.0

Chi-square = 9.2: Not statistically significant at $P < 0.05$

However the trend varies across the village with Usangule having the largest number of people who acquired land for use through village government compared to the other three villages and Misegese village being the least and there were no statistical differences in land acquisition between villages with a chi-square value of 9.2 (Table 6). The villagers particularly the agropastoralists treat the village land as open access land in terms of utilization and that is why conflicts arises. The indigenous farmers also feel that they have more right to possess the land and use it and therefore they still treated the land as an open pool resource. On the other hand Igawa had many respondents who acquired land through inheritance, followed by Misegese and then Minazini and Usangule.

According to the focus group discussion the study revealed that the variations of the land acquisition across villages were attributed by the historical background of the villages themselves. For instance Igawa and Misegese were established earlier than Usangule and Minazini and thus it is likely to have high number of people who inherited land from their ancestors as compared to Usangule and Minazini. However, it was revealed that the village government is the main body for allocation of the land to its people and in some cases the agropastoralists are favoured by being allocated with bigger plots. This exercise is associated by corrupt practices and favouritism ending up with dissatisfaction of the indigenous and hence conflicts with agropastoralists.

4.3.2 Number plots owned by the respondents

The ownership of plots for agricultural activities varied from one to five plots per household depending on the labour force, working tools and purpose for the plots. The result showed that majority of the population in the surveyed area own three to five plots which accounted for (51.6%) while 48.4% of the respondents owned less than 3 plots. However, numbers of plots owned were low for the Minazini and Usangule villages (Table 7) and higher for in Igawa and Misegese villages. However, the average land size across villages was not statistically different at $P < 0.05$ with a chi-square value of 6.18 (Table 7). This implies that, all the four villages have common features in land utilization thus there is no variation in land ownership and sizes among the four villages. The presence of teak plantations and increased livestock heads might have also contributed in reduction of number of plots owned, while for Usangule the presence of WFP Ltd and continuous increase in livestock impaired further acquisition of plots for crop production and grazing, as most of WFP areas are protected. However, Misegese village is not affected by the two investors and therefore they had an opportunity of acquiring more plots. For Igawa residents having higher illiteracy level and knowing the importance of land, made them possessing more number of plots for their household members.

Table 7: Number of plots owned across villages

Number of plots in %	Villages				Total N=120
	Minazini n=30	Usangule n=30	Misegese n=30	Igawa n=30	
1 to 2 plots	61.3	66.7	41.4	23.3	48.4
3 to 5 plots	38.7	33.3	59.6	76.7	51.6
Total	100.0	100.0	100.0	100.0	100.0
Mean (acre)	12.8	16.1	15.7	13.1	-

Chi-square = 6.18; p=0.721

In the FGD and key informant interview, it was also revealed that the agropastoralists own bigger plots than the indigenous farmers. This is due to their big capacity in the utilization of draught animals for farm operations. Their big household sizes were also another factor for having more plots due to big labour force capable of attending the plots and it serves as food security shield due to the crop varieties produced for feeding the entire family and for fetching cash.

4.3.3 Ethnicity, population and land ownership in the study area

The study analyzed population growth among ethnic group to account for the potential sources of conflicts in the study area. Figure 6 shows that, nearly 48 percent of the population consists of wasukuma implying that the population of wasukuma has grown significantly in recent years and has exceeded the combined population of Wandamba and Wapogoro. This increase necessitated acquisition of more land for crop cultivation and pasture for livestock.

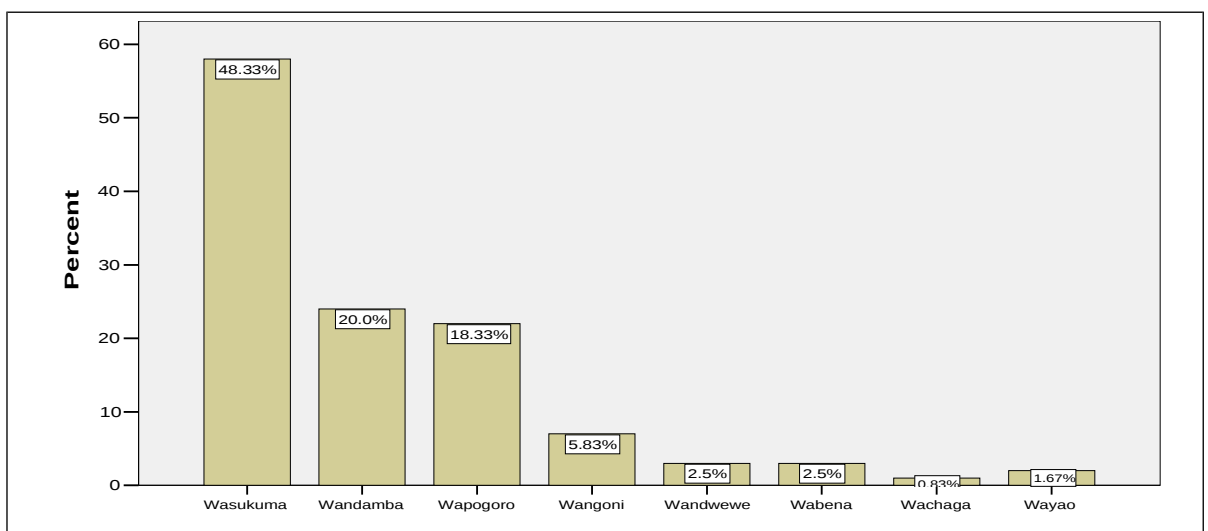


Figure 8: Proportion of ethnic groups in the study area.

These findings correspond well with the number of plots owned by the dominant group.

As Figure 9 shows, wasukuma population in every category of number of plots is high

implying that they own more land in the study area compared to other groups. The wasukuma are wealthy, polygamists and they own big herds of livestock. Their financial capacity enabled them to purchase or acquire big plots for their entire families. This deprived the indigenous (Wandamba and wapogoro) of their right to expand their farms. In the FGD, it was also revealed that, farmers who tried to acquire land adjacent to the agropastoralists had their crops destroyed by livestock. The combination of this factors resulted into frequent land use conflicts between the agropastoralists and indigenous farmers in the study area.

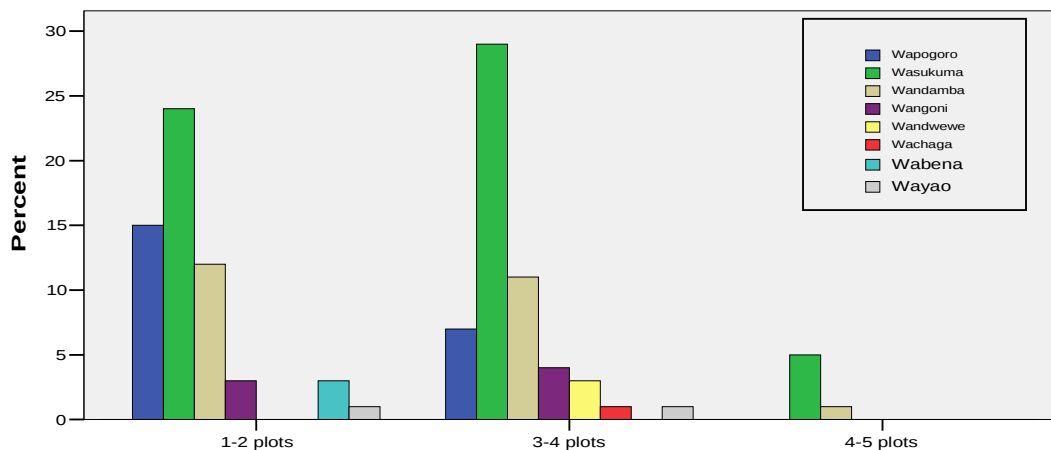


Figure 9: Ethnicity and number of plots owned.

4.3.4 Total size of land owned

The total number of plots owned and their size was one of the key factors in selection of a type of farming system and the type of crops to grow. The results show that, households with 21-40 acres of land are much higher than those who possess more than 41 acres of land. The majority of the population (75%) had 1-20 acres of land while 18.3% households possessed 21-40 acres (Table 8). (Fig. 10) also indicates that, majority of the respondents had 1-20 acres of land for various uses and very few individuals used more than 21 acres in all the four villages.

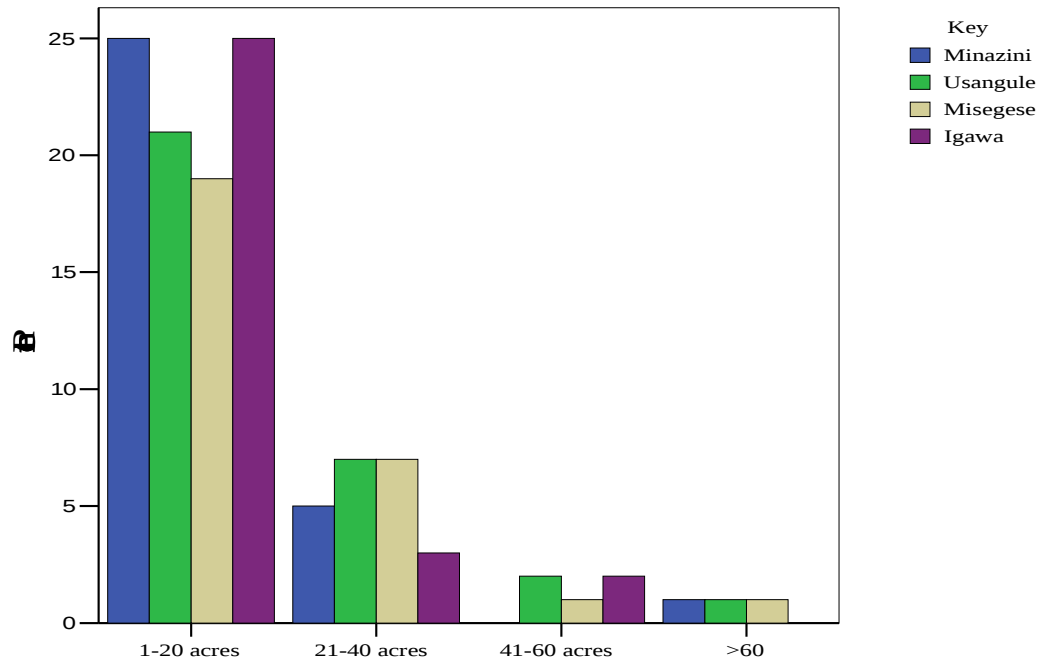


Figure 10: Categories of plot size in acres

The pattern of land size showed minor variation across the villages. While majority had 1-20 acres in all the four villages, none of the respondents had 41-60 acres and more than 60 acres in Minazini and Igawa villages, respectively. A big portion of the land is a communal grazing land which is used by the indigenous farmers and agropastoralists for crop cultivation and livestock grazing respectively.

Most of the respondents used a minimum of one to three and half acres while the maximum land size used was 68 acres for respondents from Minazini and Usangule villages, 46 and 80 acres for Igawa and Misegese villages, respectively. However there was no significant difference in farm size across the villages at $P < 0.05$ with chi-square value of 6.183. This implies that all the four villages have common features in land utilization and there is no variation in land sizes among the four villages. Highest mean land sizes of 16.09 and 15.74 acres were found in Usangule and Misegese villages, respectively and the lowest mean land size was observed in Minazini village with a mean of 12.8 acres. However, the higher standard deviations observed in villages for land sizes might be due to some individuals using bigger land than others leading to land use conflicts.

Table 8: Land size owned by respondents

Land size	Minazini n=30	Usangule n=30	Misegese n=30	Igawa n=30	Total n=120
1-20 acres	80.0	66.7	70.0	83.3	75.0
21-40 acres	16.7	23.3	23.3	10.0	18.3
41-60 acres	0.0	6.7	3.3	6.7	4.2
Above 60 acres	3.3	3.3	3.3	0.0	2.5
Minimum	1.0	1.0	1.0	3.5	
Maximum	68	68	80	46	
Mean	12.8	16.09	15.74	13.12	
Std dev	13.35	16.05	17.64	10.84	

Chi-square 6.18, $p=0.721$

In the FGD, the farmers pointed out that, conflicts over the land have nothing to do with the farming system but rather the corrupt practice of the village government leaders and negligence of agropastoralists towards grazing regulations. The leaders give more land to agropastoralists. The indigenous farmers restrict the agropastoralists to graze in the harvested farms immediately after harvesting to avoid the risk of poaching by livestock hooves. One farmer at Igawa said that, *“One day the villagers caught livestock in the farms but when the agro-pastoralists paid the penalty in terms of cash the village chairman took the money instead of giving it to the affected farmer”*. The village government leaders were viewed as potential key players in conflicts management. The poor governance for the village leaders and corrupt practices might somehow contribute to land use conflicts in the area.

4.3.5 Land use types in the study area

The study investigated the prominent land use types practiced in the study area. From the focus group discussion the study revealed that the prominent land use types were for crop production, livestock keeping, game conservation and hunting, forest reserves, forest plantation and for residential purposes. In Minazini village the main land use types was for crop production livestock keeping, game conservation and teak plantations. This implies that the Minazini village has more land use types compared to the other surveyed villages. This situation is slightly different from Igawa, Usangule and Misegese villages where there are no teak plantations. However it was further revealed that in Misegese village there was no game conservation therefore there are only two main land use types. This came about due to the isolation of the village from the Kilombero River and is near Malinyi town.

Discussion with the hunting company using key informant interview revealed that land use types and land rights had no strict rules and regulations. The Company representative pointed out that, it was granted a hunting license for the hunting block in 1992 within the Kilombero Game Controlled Area. It was further revealed that the hunting block was efficiently used for tourist hunting during July and December and in January to May the agro-pastoralists encroach the block for grazing livestock. The company operated without a major problem concerning land use however, dramatic increase of the livestock heads in 2000 has created a big problem in game dispersion and mortality. This resulted into frequent conflicts between the main resource users (farmers, agro-pastoralists and the company) particularly in Minazini and Usangule villages.

Key informant interview with KVTC revealed that, the teak company was comfortable as the farmers and agropastoralists use their entitled land and could not infringe into the teak plantations. This is due to the fact that, the KVTC plantations were planted with teak trees and fenced with electric wires to restrict people, wildlife and livestock entry. It was found out that, the Company owns 23,000ha of land and it was still seeking for more land from the villagers. Worse still it was revealed that only about 5000 ha of teak were planted and the aim of the company was to establish up to 10 000ha of teak (*Tectona grandis*). The company representative mentioned that, the residents of Minazini were totally against the request for more land from their village land. This indicates that the villagers are aware of the land shortage and they had forecasted for the betterment of the future generation due to the land use problems they were starting to face. This also implies that teak plantations in Ulanga had been established in arable land which was suitable for crop production and hence deny the farmers in Minazini village with the opportunity to expand their plots as they used to do before. However the company informed the research team that, the wild

animals destroy the young teak trees in Minazini village but they had never entered into conflicts with either the farmers, agro-pastoralists and the Wild Footprints Limited,

4.4 Land Use Dynamics and Migration Pattern in Ulanga district

4.4.1 Immigrants in the Study area

Figure 11 shows the origin of the migrants in Ulanga district. The study revealed that the agro-pastoralists found in Ulanga district came from Mbeya, Rukwa and Shinyanga regions to tap the potential of Ulanga due to scarcity of land for pasture and agriculture from their previous regions. It was observed and noted that, some agro-pastoralists had settled in the area just three years ago as an indicator of persistent inflow of agro-pastoralists in the area. The results from FGD revealed that majority of the respondents thought there is plenty of land sufficient to accommodate livestock and for agricultural activities. These might have been the cause behind most of them violating the rules and regulations that have been set to govern the area for instance grazing and cultivating and killing animals in the hunting block is considered to be a right practice to them.

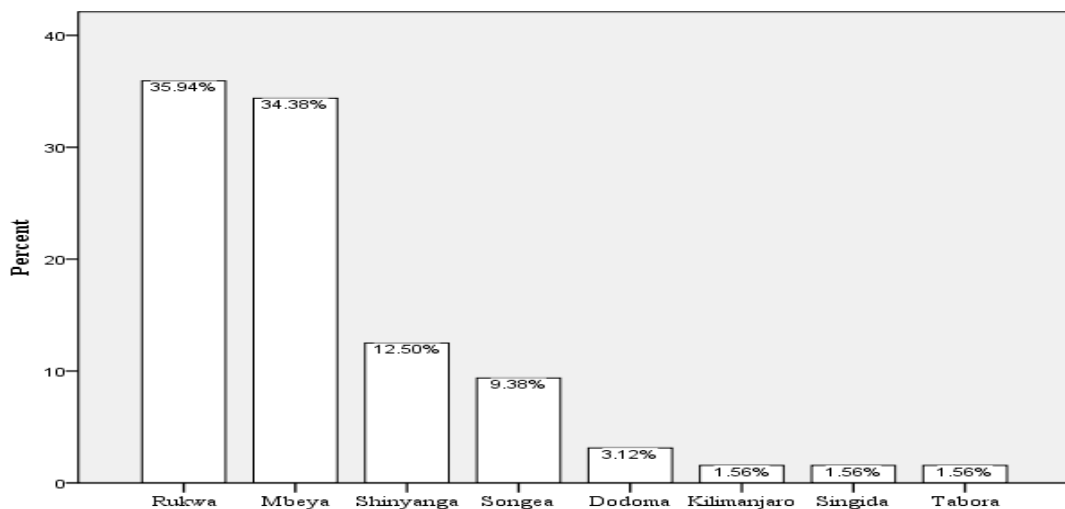


Figure 11: Immigration trends to Ulanga.

4.4.2 Incentives that attracted the immigrants in Ulanga district

Table 10 shows the factors that prompted immigrants to settle in Ulanga district. Agro-pastoralists started settling in Ulanga since 1980s but in 1990s onwards increased influx of the Sukuma from Usangu and Rukwa were attracted by a potential land for crop production and livestock grazing in Ulanga district. This study revealed that, 40% and 55.4% of the agro-pastoralists immigrated into the area due to abundant pasture and land for agriculture, respectively. The remaining 4.6% came to the area for other reasons (Table 10).

Comparisons across villages showed that Usangule village accounted for the highest proportion of the respondents who came to Ulanga in search of pastures for their livestock, while Misegese and Igawa villages had the highest proportion of respondents who immigrated in the area for farming (Table 9). The reason behind could be that previously Usangule had a large open area and has rivers flowing across. The two factors attracted livestock keepers for they got enough pastures and water for their livestock. The agropastoralists settled in Igawa and Misegese villages to acquire land for rice and maize cultivation because during that period rice was only produced for subsistence and land was plenty for new comers.

Table 9: Incentives for Agro pastoralists' immigration to Ulanga across villages

Incentives	Villages				Total %
	Minazini %	Usangule %	Misegese %	Igawa %	
Abundant pasture	42.9	58.8	29.4	29.4	40.0
Land for farming	35.7	41.2	70.6	70.6	55.4
Good weather	7.1	0.0	0.0	0.0	1.5
Marriage	14.3	0.0	0.0	0.0	3.1
Total	100.0	100.0	100.0	100.0	100.0

Similarly, the same case was revealed in Minazini village that immigrants settled were livestock keepers and crop growers. However a small proportion of the respondents in

Minazini village were revealed to settle in the area due to marriage and good weather condition. Other respondents could not indicate good weather as the reason for their settling as this might have been due to the failure in linking land suitability for farming and abundant pastures as being due to good weather. The agropastoralists settled in areas with abundant pastures which were closer to the reserved areas where they co-exist with wildlife. On the other hand good market condition for the crop produce in Malinyi town might have attracted agropastoralists to immigrate in villages nearby like Igawa and Misegese. Recently the agropastoralists have exhausted a large proportion of the arable land and encroached the game controlled area for crop cultivation and pasture for their livestock. The abundant pasture which was previously in the area is no longer available while the livestock population is continuously increasing. Moreover agropastoralists used to graze livestock in the farmers' plots contrary to the village government regulations and resulted into land use conflicts between them and farmers and the owner of the game controlled area.

4.4.3 Number of years immigrants have stayed in the area

Table 10 shows the number of years the respondents (immigrants) have stayed in the area and dynamics of land use in Ulanga district. Land use activities in the study area have not been static as the need for more land increased consistently with increasing population and changes in land use types with time. More than 40% of the respondents indicated that they settled in the area 2-10 years ago, while a similar proportion settled in the area 11-19 years ago, and the remaining group settled in the area 20-36 years ago. Generally, it indicates that immigrants started settling in the area more than two decade ago. Results from FGD indicated that they decided to settle as the area had good soil fertility and enough pastures for livestock. Of recent, more than 40% of the respondents indicated that they had acquired land for their activities. The need for more land for the residents had been brought about by the increasing number of people and livestock. When the youths decided

to be independent from their parents they requested for land from the village government for agriculture activities. From the results in table 10, it indicates that, persistent inflow of immigrants in the study area is a driving force for demand of more land and eventually perpetuation of land use conflicts among the main users of the land.

Table 10: Number of years the immigrants stayed in the area

Years	Villages				Total %
	Minazini %	Usangule %	Misegese %	Igawa %	
2-10 years	33.3	52.6	86.7	5.9	43.9
11-19 years	40.0	31.6	6.6	94.1	43.9
20-28 years	20.0	15.8	0.0	0.0	9.1
29-36 years	6.7	0.0	6.7	0.0	3.1
Total	100.0	100.0	100.0	100.0	100.0

4.4.4 Land use change and land requirement in Ulanga district

Although majority of the respondents indicated that they owned between 1 to 20 acres, most of these showed a need for extra land. The results showed some individuals requiring additional land for realization of their needs for family and for cash. The Minazini and Misegese villagers indicated higher additional land needs compared to Usangule (Table 11). Furthermore, majority indicated that they required 1 to 10 acres. In Usangule the need for extra land was on average of 11-20 acres and marked a slight difference compared to the other villages. This is due to the fact that, large proportion of the land in Ulanga is covered by game sanctuary and forest reserves (Table 2). Moreover, establishment of the teak plantations and Kilombero game controlled area has greatly affected the availability of land for crop production and pasture. While the data provided in the 2006 population dynamics shows Ulanga is sparsely populated the data do not reflect the reality because the arable land is very small relative to the total area of the district. The remaining proportion of arable land can't support the livestock herds for pasture throughout the year therefore the pastoralists graze in undesignated areas.

Results from Focus Group Discussion revealed that in the 1990s there were no land shortages and it made it possible for the residences to have plenty of food as the indigenous used the KGCA as source of meat and poles for construction of houses and food storage structures. It was however iterated that, the situation changed before the coming of the agro-pastoralists and the Hunting Company and thus land use practices are different and scarcity has emerged.

It was again noted that there were increased need of land for rice and maize production for sale outside the district from 1998 onwards. While land size is constant, land needs are increasing and changing continuously therefore the shortage may arise due to increasing population and livestock herds. This phenomenon may be pre-disposing factors for land use conflicts.

Table 11: Size of extra land needed

Land size needed	Villages				Total %
	Minazini %	Usangule %	Misegese %	Igawa %	
1-10 acres	65.4	57.1	76.5	83.3	69.6
11-20 acres	19.2	35.7	11.8	16.6	20.3
21-30 acres	0.0	7.1	0.0	0.0	1.4
31-40 acres	15.4	0.0	11.8	0.0	8.7
Total	100.0	100.0	100.0	100.0	100.0

4.4.4.1 Measures for addressing the problem of land requirement

In the recent years, majority of the natives of Ulanga have indicated state of extra land requirement ranging from 1 to 10 acres per household (Table 11). In actual sense what they indicate is lack of ownership of the land they are using. With borrowing and hiring land needs seem to be adequate. Land needs have been increasing with increasing immigrants and livestock in the area. Generally, as indicated in Figure 9, more than 46% of the respondents borrowed plots for farming from their fellows while only 4.2% opted to

reduce the number of livestock in order to cope with the shortage of pastures for the livestock herds. About 38% of the peasants reduced the number of crops to grow for a particular season. Some of the peasants (11.3%) hired plots from their fellows at agreed charges. The figure indicates that, it was the indigenous farmers who are more affected by being forced to reduce the number of crops and borrowing land from fellows. Although the agro-pastoralists seemed to be reluctant to reduce the size of their herds if thorough entry points are identified they can set a room for a negotiation platform. However, with higher shortages of pastures especially during the dry season, livestock keepers were found to use crop fields as sources of feeds for their animals by letting animals graze in harvested fields and sometimes in the hunting blocks. Consequently, this option has affected farming families and also blamed to lead to the conflicts between agro-pastoralists and farmers.

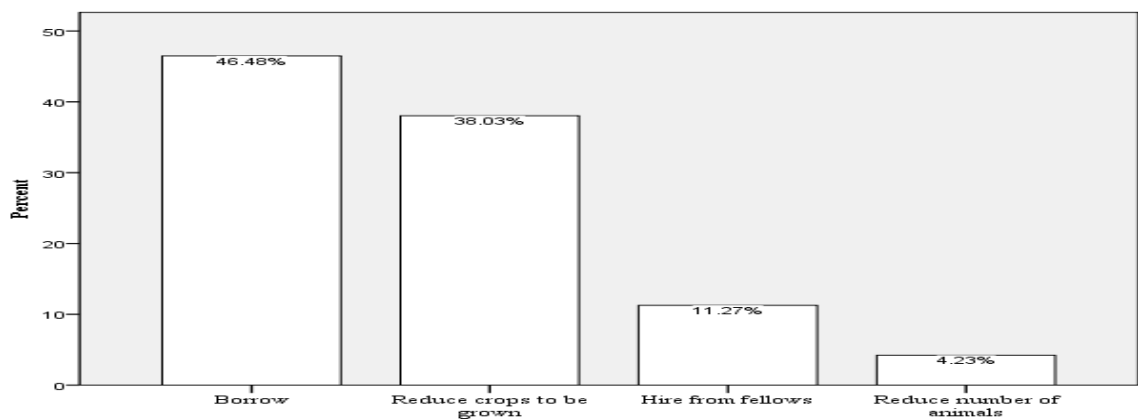


Figure 12: Measures taken to address land shortage in Ulanga district.

Based on FGD, different coping strategies have been formulated to suit the situation that had no immediate solution for both the agropastoralists and peasants. Majority of the respondents showed that borrowing of land was a major option for people in the study area

for their activities. However, borrowing on the side of the pastoralist was somehow difficult to practice as the part giving land feared of losing it in a long run.

4.4.5 Land use Conflicts in Ulanga District

Land use conflicts occurrence in Ulanga is periodical and are more intense during shortages of pastures and water for livestock. As shown in Table 12. More than half (52.1 %) of the respondents indicated that they experienced land use conflicts at least once to three times in a month while 14.3% showed that they experienced land use conflicts about five times in a month. However, of the 119 respondents who answered this question, 5.9% of the respondents indicated that there were no conflicts in their area. Across the villages most of the respondents indicated that they experienced land use conflicts in about 3 times a month as shown by 46.7%, 62.1%, 63.3% and 36.7% for Minazini, Usangule, Misegese and Igawa villages, respectively. The differences in frequency of conflict occurrences between and across villages were found to be statistically significant at $p < 0.05$ with a chi-square value of 19.75. This implied that, conflicts in the study area are continuous and escalating. If no land use conflict management initiatives these might breed uncertainties to the communities in Ulanga.

Table 12: Frequency of occurrence in land use conflicts

Frequency	Villages				Total %
	Minazini %	Usangule%	Misegese%	Igawa %	
Up to 5 times/month	23.3	20.7	6.7	6.7	14.3
Up to 3 times/month	46.7	62.1	63.3	36.7	52.1
At least 2 times/month	26.7	10.3	20.0	53.3	27.7
No conflicts at all	3.3	6.9	10.0	3.3	5.9
Total	100.0	100.0	100.0	100.0	100.0

Chi-square 19.75, $p < 0.05$

4.4.5.1 Main causes of land use conflicts

Table 13 shows the main sources of land conflicts in Ulanga district. It has been revealed that land use conflicts in Ulanga district were mainly due to lack of proper land use planning as shown by 30.8% of the respondents across the villages. Similarly, livestock overstocking was also reported to be the cause of some of the conflicts seen in Ulanga district and variations in elements leading to escalating land conflicts in the study area were found to be statistically different at $p < 0.05$ with a chi-square value of 48.75. Organization on grazing pattern could help reduce conflicts if demarcations were set to isolate farmers from agro-pastoralists. This implies that once there is overstocking and illegal influx of livestock in the area and no defined land use planning, chances of eruptions of conflicts are increased.

Table 13: Main causes of land use conflicts in the area

Responses	Villages				Total %
	Minazini %	Usangule %	Misegese %	Igawa %	
Non transparent and					
corrupt leaders	3.3	3.2	11.1	0.0	3.4
Lack of land use planning	33.3	45.2	22.2	20.6	30.8
Overstocking	46.7	16.1	33.3	41.3	34.2
Lack of livestock					
infrastructures	0.0	9.7	3.8	3.7	5.1
Lack of bylaws	16.7	25.7	29.6	34.4	26.5
Total	100.0	100.0	100.0	100.0	100.0

Chi square 48.75, $p < 0.05$

From FGD it was revealed that no sensitization has been carried out by the village government leaders or neither the farmers nor agro-pastoralists to facilitate smooth negotiation on resource use in the area. With no land use planning that has been

conducted it entails that anyone could use the land in the way one thinks was proper and as such greatly it could influence occurrence of conflicts between groups with conflicting interests. Previously, land use planning was not done in a participatory and led to a failure in its implementation. The increase in the livestock numbers beyond the carrying capacity caused shortage of grazing land and land for agriculture altogether. These forced farmers to establish new farms near the agro-pastoralists and when the later felt that the livestock are not fed properly, they illegally decide to graze in the harvested fields or field crops leading to conflicts. In some cases, the agropastoralists grazed their animals in the hunting block and this also created a more serious conflict and sometimes livestock keepers ended up losing some of their animals.

4.4.5.2 Types of Conflicts encountered in Ulanga district and solutions

The types of conflicts commonly seen in the study are as shown in Table 14. In Minazini and Misegese villages verbal quarreling was not very common, however in Usangule and Misegese their conflicts was associated with fighting by using sticks which the agro-pastoralists commonly used weapons (*Milanga*). Injuring livestock was also common in Igawa and Misegese villages, while in Minazini, Usangule and Igawa preferred seizing livestock and

Table 14: Types conflicts encountered in the villages

Type of conflicts	Villages of respondents				Total%
	Minazini%	Usangule%	Misegese%	Igawa%	
Verbal Quarrellings	0.0	22.2	0.0	36.3	14.6
Fighting with weapons	83.3	55.5	80	27.3	61.5
Injuring livestock	0.0	0.0	20	18.2	9.5
Seize livestock	16.6	22.2	0.0	18.2	14.3
Total	100.0	100.0	100.0	100.0	100.0

Chi square 10.45, p=0.315

reporting to the village government (Table 14). In Usangule and Igawa majority of farmers and agro-pastoralists ended up with quarreling and fighting. The cases were reported in almost all villages under study and there were no statistical differences in types of conflicts with chi square value of 10.45. Fighting however was an indication of failure in negotiations and or might be failure of institutions to mediate the situation. Fighting incidences were higher during April to June when the valley is flooded and pasture is selectively obtained. The wild footprints Company staff tended to open fire to livestock herds when the herdsmen became reluctant to remove them from the hunting block and when they found wildlife killing cases.

Frequent eruption of conflicts might have been contributed partly by the District Council due to lack of strategies and interventions to cease land use conflicts in the district. Lack of effective and motivated conflict resolution committees at the village level and reliance on the village government leaders for handling this matter might be another major weakness. Rampant land allocation to farmers near the hunting block and around the grazing and is also a predisposing factor for the conflicts. Crop destruction by wild animals near the Furuwa River and in Usangule village along the Rwasesa River is also common; however the farmers do not end up with conflict with the Wild Footprints Company. Due to ethnic mix up of the community in Ulanga it might be thought to be emanated from the negative attitude of the Wandamba and the Wapogoro to the Wasukuma, but this might not be the case. These conflicts were mainly caused by resource competition coupled with lack of strategies for bringing the stakeholders together to initiate and foster collective action methodologies for managing the conflicts.

4.4.5.3 Seasonality of occurrence of land use conflicts

Table 15 indicates the time when conflicts usually occur during the year. Mainly land use conflicts were shown to occur in January to March and July to September, respectively. This could be due to the fact that it coincided with the dry spell that exhibit low supply for both pastures and water and hence forcing the livestock keepers to move in search of pastures and water for their animals. Minazini village had the highest frequency of conflicts in January to March while Igawa village had highest land use conflicts in July to September. In this period the grazing land in the wetland is flooded and most of the valley is covered by rice and maize farms and hence pasture for the livestock become scarce. In Misegese and Usangule villages the conflicts are slightly higher in April to June relative than in other villages (Table 15). In January to March the conflicts are mainly due to livestock grazing in the farmers plots because in this period of the year the crops are in the farms. This is the period when farmers are preparing their farms and it is the same period that there is scarcity of pasture in almost all the valley except in the game controlled area. In July to September most of the farms are free of crops but the pastoralists are not allowed to graze in their livestock, however they do it by force in the absence of farm owners. Variations between villages on times when conflicts happened were found to be statistically different and was significant at $p < 0.05$ with a chi-square value of 31.6

Table 15: Periods with high incidences of conflicts in the area

Season	Villages				Total %
	Minazini %	Usangule%	Misegese%	Igawa %	
January-March	50.0	23.3	28.6	13.8	29.1
April-June	26.7	26.7	35.7	13.8	25.6
July-September	6.7	23.3	21.4	62.1	28.2
October-December	16.7	26.7	14.3	10.3	17.1
Total	100.0	100.0	100.0	100.0	100.0

Chi-square = 31.6, $p < 0.05$

Results from the FGD showed that restriction of agro-pastoralists to feed on crop residues was somehow guided by village bylaws and violation to which lead to punishments being exercised. Farmers reported to restrict animals to gain access in their farms to avoid animal trampling which could lead to soil compaction because they plough their land by oxen plough when it is moist and soft while farmers plough on October and November. For Igawa village, land use conflicts were reported to be higher because of the restrictions imposed to enter the hunting block. Hunting season starts in July and during these period no intruders are allowed in the hunting block therefore, agro-pastoralist are forced to push their animals into harvested fields owned by farmer.

4.4.5.4 Distribution of land use conflicts

Table 16 shows the distribution of land use conflicts in relation to the main activity of the area. Although land use conflicts are reported to be common in Ulanga district, they are found to vary greatly in occurrence and severity from one place to another. It was noted that land use conflicts were more serious in the farmers' plots between farmers and agropastoralists especially during the cropping season. More than 49% of the land use conflict incidences were found to occur when agropastoralists invaded the farmers' plots. The conflicts were higher also in game controlled areas between villagers and the authorities of the game controlled areas as farmers and agropastoralist tried to invade the controlled areas in search for their livelihoods (Appendix 4). The differences on areas in which conflicts were more observed was found to be statistically different across villages at $p < 0.05$ with chi-square value of 39.92. These might be due to shortage of land in especially from January to March during which most of the land is cultivated and hence reducing land for grazing animals.

Table 16: Distribution of land use conflicts

Site of conflict	Village				Total %
	Minazini %	Usangule %	Misegese %	Igawa %	
Teak plantation	3.2	0.0	0.0	0.0	0.9
Game controlled area	43.3	6.5	0.0	3.4	13.7
Harvested fields	10	16.1	29.6	41.4	23.9
Plots with crops	36.7	64.5	55.6	41.4	49.6
Open access land	10.0	9.7	14.8	13.8	12.0
Total	100.0	100.0	100.0	100.0	100.0

Chi-square= 39.92; p<0.05

When land is cleared in preparation for new crop season is when also the agro-pastoralist experience higher shortages of pastures for their livestock. During this period the livestock are forced to coexist with the wildlife in the Game Controlled Area to benefit from the pasture and water in the swamps and Kilombero tributaries. In Minazini more than 43% of the agropastoralists graze their livestock in the Game controlled area. This implies that the teak plantation has caused the agropastoralists to settle around the GCA and when there is pasture shortage they are forced to encroach the hunting block for the survival of their livestock. When the agro-pastoralists are forced out of the Game Controlled Area and they keep their livestock in the patches of the open access land. In the course of the resource competitions in the area the livestock exhausts the pasture and invade the crop areas and when this situation occurs, the chances for conflict occurrence increase. The victims of these conflicts in most cases are the farmers and agro-pastoralists particularly in crops destruction and livestock injuries. The absence of conflict incidences in the teak plantation could be due restrictions on entry to the area by the installation of the electric fences that discourages agro-pastoralists

4.4.5.4.1 Methods employed in managing the land use conflicts

Methods employed in managing conflicts were as shown in Fig. 13. Escalating land use conflicts had called upon formulating methodologies for management of the same at village level. In most cases, penalties are set for the individuals found to be the causes of the conflicts as shown by 29.5% of the respondents. However, village leaders as shown by

23.5% of the respondents were found to be used in settling down the disputes. If the differing groups were considerate, negotiations were employed to settle the conflicts. For worse situations of conflicts could necessitate severe conflicts with higher degree of property destructions to be forwarded to the police and court magistrate officers as shown by 9.5% of the respondents. Sensitizing on peaceful stay and convincing livestock keepers to destock their animals have been also used to as steps towards reducing forthcoming conflicts.

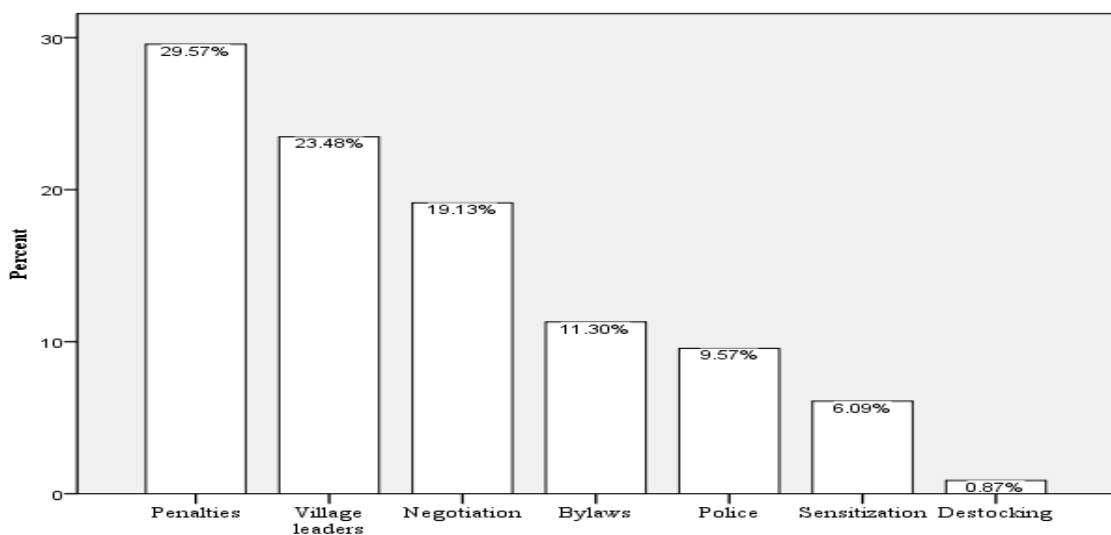


Figure 13: Methods used in managing the conflicts in the area.

Only a few, (11.3%) respondents had shown to use the existing bylaws for managing the conflicts between farmers and pastoralists. Although the use of bylaws is more favoured it was found not to be not commonly used due to reluctance of the agro-pastoralists to reach positive consensus with the farmers. During the FGD, it was revealed that, the village government leaders held the mandate on allocating the land to the villagers and the same leaders managed land use conflicts on behalf of the village conflict resolution committee. In this approach the village resolution committees have remained dormant for a number of years and neither the district authority nor the land users are aware of this situation.

Corruption has also been mentioned in the focus group discussion on the allocation of land to villagers and other developing partners and this has caused severe misunderstanding between villagers and leaders particularly in Igawa village. The penalties and compensation have been purposely designed to enable the village government to boost their accounts with the money accrued from the penalties.

4.4.5.4.2 Solutions for the long term management of the land use conflicts

Respondents' opinions on solutions they proposed for long term management of conflicts were as shown in Table 17. Though various measures had been called upon for long term management of the problems among the land users in the area, proper land use planning was pointed to be an appropriate approach for solving land and other resource use conflicts. For example, in Minazini village majority of the respondents proposed that proper land use planning could lead to long term settling of the conflicts while Misegese and Igawa villages showed a need for removing the agro-pastoralists to other areas as better move towards resolving conflicts. In Minazini, Usangule and Igawa villages, there is a conflict with the hunting company on failure to abide on the boundaries of the hunting block. Misegese is not bordered by the hunting block and thus most of the land use conflicts occur between the agropastoralists and not with the hunting company (Table 17). However, variations on proposed long term solutions on managing land use conflicts as given by the respondents across villages were statistically significant at $p < 0.05$ with a chi-square value of 43.64.

Table 17: Solution for the long management of land use conflicts

Response	Village name				Total %
	Minazini %	Usangule %	Misegese %	Igawa %	
Conduct land use planning	58.6	33.3	20.7	31.0	35.9
Establish VAAs	0.0	20	13.8	6.9	10.2
Set bylaws for land users	6.9	23.3	6.9	13.8	12.7
Sensitize land users	13.8	10	13.8	3.4	10.2

Establish VCRC	3.4	0.0	13.8	0.0	4.30
Remove illegal agropastoralists	17.2	10	27.9	41.4	24.1
Allow grazing in the hunting block	0.0	0.0	3.4	0.0	0.80
Allow grazing in the fallow and harvested plots	0.0	3.3	0.0	3.4	1.70
Total	100.0	100.0	100.0	100.0	100.0

Chi-square= 43.64, $p < 0.05$

Results from FGD showed that most respondents indicated that pastoralists entered the area illegally and they proposed that they be removed from the Valley. Therefore, proper land use planning by taking out the pastoralists and setting boundaries could result into long term solutions on conflicts resolutions in the study area. They claimed that village leaders have not established known boundaries between agro-pastoralists and the farmers. Such a weakness have been allowing free expansion of the farm land and the same time the agro-pastoralists have been increasing number of livestock over the ever dwindling resource base. The removal of agro-pastoralists who entered the area illegally was also strongly advocated by the WFP Ltd and at the same time used by used by Kilombero district council and it was found to be successful in terms of conflict cessation and decrease of land shortage. This was done through a special campaign to remove the agro-pastoralists who entered the area illegally. In Usangule and Igawa villages establishment of strong resolution committee and strong bylaws were greatly emphasized. These were found to relieve the village Government leaders from the responsibility of handling conflicts matters and they only remained as advisors of the committee.

4.4.6 Formal and Informal Institutions for Conflict Management

This section summarizes the different formal and informal institutions for conflict management in the study area. The discussion concentrates on institutions for regulating land use conflicts in the area, institutional rights and investment decision in land

utilization, conflicts encountered and how they are solved. Discussion has been derived from the tables produced after data analysis and in some cases focus group discussion information has been used to supplement the findings.

4.4.6.1 Institutions for regulating land use conflicts in the village

Table 18 shows the types of institutions used in conflict management in Ulanga district. Generally in all the surveyed villages there were formal and informal institutions for conflict management. Most of the respondents acknowledged the presence of formal institutions that are set to foresee all issues related to resource use in the study area, but environmental committees are reported not to have been established in Usangule and Misegese villages. The formal institutions include village government and the environmental management committee operating under the village government was the legally established institutions in the village.

Table 18: Institutions for regulating land use in the villages

Responses	Village name				Total%
	Minazini %	Usangule %	Misegese %	Igawa %	
Customary authority	10.0	10.0	10.0	3.3	8.33
Farmer groups	10.0	6.6	3.3	0.0	5.00
Grazing management					
group	20.0	10.0	3.3	0.0	8.33
Formal institutions	56.6	73.3	83.3	93.3	76.63
Land and environment					
Committee	3.3	0.0	0.0	3.3	1.70
Total	100.0	100.0	100.0	100.0	100.0

Chi-square= 17.59, p=0.13

Many disputes in relation to conflicts between groups in the area were formally handled by the two institutions. However, in addition to the formally established institutions, respondents also reported to use customary authorities for conflict management. Additional initiatives by establishing farmer and grazing management groups also were

seen to be new avenues set for negotiations over resource use in the study area. As shown in Table 18, in Igawa village farmer and grazing management groups are not established and hence lacking important setting for resource use negotiation between the two conflicting groups. However, there were no statistical differences at $p=0.05$ on proposed institutions that would assist in solving land use conflicts across villages.

Although handling conflicts was a typical role of the village government and environmental committee who have power to impose penalties and setting compensation base, sometimes in rare cases local leaders (*Sungusungu chairman*) were reported to have been involved particularly when the situation involved ethnic groups found in the area. Failure in effective utilization of the formulated committees and the customary authority might have impaired conflict management in the district. As revealed during the FGD ineffective and inefficient use of the informal institutions and reliance on the village government leaders had caused weakness in conflict management in all the four surveyed villages. Therefore, there is a need to strengthen village level institutions for conflict management. These findings are similar to that of Ngaido, (1993) who also found that, some conflicts between transhumant herders and agriculturists are still resolved at village level but the use of courts to resolve conflicts related to pastoral resource seems to be constantly on the rise nowadays. This indicated that, the society was losing trust on the efficiency of the local level institutions in conflict resolutions and thus they had to take some of the cases to court.

Land utilization right has caused a negative effect on the expansion of the land and positive effect on investment decision. The community members could use land for either livestock grazing or for crop cultivation. During Focus Group Discussion, it was noted that the respondents could not expand the land for their livestock or for crops because

there was no institutional right over the land. The agro pastoralists thought that all the land was open access and they could expand it whenever they feel to do so. In many circumstances the pastoralists did not like to disclose the size of their herds due to fear of paying taxes and they can be victims when the district authority orders them to reduce the size of their herds.

4.4.6.2 Institutional rights in land utilization

Land use protection modes for respondents are as shown in Table 19. Out of the 118 respondents who answered a question on whether they were aware of presence of any land use protection in their areas, most, 77.0% indicated that they relied on village protection while 15.4% and 7.6% showed that they processed village user right and had customary rights as

Table 19: Institutional right of the respondent over land ownership

Land right	Villages				Total %
	Minazini %	Usangule %	Misegese %	Igawa %	
Village user right	11.1	17.6	0.0	33.3	15.4
Customary right	11.1	11.8	0.0	0.0	7.6
Village protection	77.8	64.8	100.0	66.7	77.0
Total	100.0	100.0	100.0	100.0	100.0

Chi-square= 11.36, p= 0.25

their protection modes in their areas, respectively. Majority of the respondents showed that highest proportion of the land was under village government a situation that was found to prompt conflicts as most of them could think government land belongs to anybody and no one could restrict access to it by others. Generally land tenure system was complex for all the residents both for the natives and for the immigrants. Most of the land was under the village government and the majority of the agro-pastoralists acquired land from their fellows without registering into the village register. The land ownership across the village

varied considerably as all the land in Misegese fell under village protection whereas in Igawa more than 60% of the land was under the village and more than 30% of the residents possessed village user right. In Minazini and Usangule villages the proportion of land for people with user rights and customary rights had minimal variations.

From the results presented in Table 19, it indicated that the community in Misegese was still unaware on the value of their land and they don't see the essence of having even a customary right or village documentation over their land. In Igawa, they seemed to be aware of the land value and they find it useful to acquire documentation of their land for the next generation. In Usangule and Minazini villages sensitization on land use and land rights had been done by technical staff from the department of lands in the district headquarters. This knowledge has enabled them to acquire documentation over their land for different economic activities.

With land scarcity, agro-pastoralists owning land and which had land rights were sometimes making local arrangements to acquire more land by exchanging it with livestock. It was again noted that some community members felt that there were no any effect on land tenure and investment decisions. To the agro pastoralists' polygamy and a big family size were seen as indicators of wealthy and prestige in the society, a situation which retarded efforts to convince such group to reduce number of livestock. Therefore they have to maintain big herds of livestock and since they will have to feed their animals in other people's farms it led to more conflicts. The respondents' perceptions on land tenure and land use patterns systems set was positive and they acknowledged the arrangement, however, they were not happy with the restrictions set on entering the hunting block. They were expecting to have an open access to the hunting block and preferred to be allowed even to graze their animals and cultivate crops in this areas.

4.5 Factors Influencing Land use Conflicts

4.5.1 Logistic regression on possibility of conflict occurrences

The relationship between individual's characteristics and the level at which conflicts occurrence could be predicted were as shown in Table 20.

Table 20: Logistic regression results of the factors influencing land use conflicts

Variables	B	SE	Sig	Exp(B)
Intercept (Constant)	0.938	0.238	0.219	2.555
Age of respondent	0.361	0.293	0.032*	1.434
Household size)	0.546	0.255	0.001*	1.726
Farm size	-1.807	0.518	0.996	0.164
Occupation	0.002	0.393	0.901	1.002
Education level	-0.030	0.245	0.029*	0.970
Origin (native /immigrant)	-0.896	0.411	0.001*	0.408

Chi-square= 33.28, $p < 0.05$

The model predicted correctly the cases as it was statistically significantly ($P < 0.05$) with a chi-square value of 33.28. As shown in Table 20, four out of seven predictor variables were found to have a strong relationship and highly influenced the occurrence of conflicts in the study area. The results showed that increase in age of the respondents, increased family sizes had positive correlation to increased conflicts observed while low educated respondents were likely to have difficulties in settling conflicts and having many immigrants into the area also highly influenced conflict escalations. This could be due to the reason that aged individuals are the decision makers and would like to protect their household interests. Similarly, number of residents in a household (Household size) showed an influence on land use conflict in Ulanga district as the family size increases land needs also do increase, thus increasing chances of larger family sizes trying to acquire new land and or protecting what they have. Results showed a statistically significance at $P = 0.05$ level of significance that a unit increase in household member in Ulanga district increased the probability of land conflicts. This indicated that as the

household sizes increases the incidence of conflict also increases due to the increase demand for more land.

Dependent variable, Y; =Conflict incidences (1, 0), where 1= has effect on conflict, 0= otherwise, *Significant at 0.05

It was also observed that education level of respondents had an influence on land conflicts in study area and was found to be statistically significant at $P=0.05$ level of significance and had a negative coefficient that entails that with less education level chances are that individuals will be involved in conflict for resources. For every unit increase in number of years in school could reduce the chances of conflict by 0.970 times when other explanatory variables held constant. In other words, as illiteracy rate increases the chances of conflict incidences increase at the same value, that also calls for instituting educational programmes on resource use, negotiations and joint action would greatly reduce chances of conflict occurrences in the study area.

Preliminarily, it was hypothesized that origin (i.e. being a native of study area) could be highly influencing land conflict in Ulanga district, but the results from the study proved that real that being a native or an immigrant could highly cause conflicts. The natives usually had their own mode of living and changes brought about by the immigrants and pressure on dwindling resources could easily isolate the new comers as source of declining resource base and hence leading to conflicts. Results show that origin of the respondent brought about conflicting opinions on who is a cause of the conflict. Origin of the respondent was found to be statistically significant at $P < 0.05$ and highly associated with being an immigrant to the study area. Farm size though not statistically significant showed to have a bearing effect on conflict escalations as shown by its negative coefficient,

reducing farm size of individuals caused an increased pressure on land and hence less resources depend on, and therefore leading to conflicts. However, much of the conflicts due to farm size were caused by the entitlements on land ownership and not by farm size as such. The conflicts associated with farm size could also be due to the unauthorized invasion by the livestock keepers in farmer's plots when in search of extra pastures.

4.6 Fostering Collective action for Conflict Management

4.6.1 Opinion of the respondents on main issues to consider on land use conflicts

The main issues that were proposed for discussion on land use conflicts were as shown in Table 21. The Agro-pastoralists and farmers showed main concern over abiding to the set boundaries demarcating farming land, grazing land and the hunting block. However, to the disadvantage of the livestock keepers, all the four groups showed little attention on setting stock routes for livestock and with exception of the livestock keepers the rest thought of taking out the animals to separate areas. Absence of stock routes forced livestock keepers to pass the livestock in informal routes and in some cases to drive their animals to the plots with crops and causing damage to crops and thus resulted into conflicts. The stock routes were supposed to be developed under the supervision of the district authorities, and lack of emphasis on this might have created chances for conflict eruption.

Majority of the stakeholders who practiced farming and off farm activities proposed that ways should be looked into for the possibility of reducing the number of agro-pastoralists staying closer to farmers. However, there were no statistical differences at $p=0.05$ on ways proposed to enhance negotiations on land conflicts. All the occupational groups except the pastoralists who are the minority in the Kilombero valley proposed participatory land use planning to be jointly discussed to reach a win-win point (Table 21).

Table 21: Proposed main issues to consider when negotiating land conflict issues

Main occupation of the respondents

Responses	Farming%	Farming and off farm %	Pastoralism %	Agro- pastoralism %	Total %
Free access to the					
WFP	5.4	14.3	0.0	23.9	10.9
Obey boundaries	43.6	21.4	100	37	50.5
Grazing bylaws	16.4	0.0	0.0	4.3	5.20
Livestock					
structures	0.0	0.0	0.0	2.2	0.55
Participatory					
LUP	20	14.3	0.0	19.5	13.45
Reduce					
agropastoralists	12.7	42.8	0.0	10.8	16.6
Sensitize					
villagers	1.8	7.1	0.0	2.2	2.75
Total	100.0	100.0	100.0	100.0	100.0

Discussions held by respondents during FGD showed that most respondents showed concern over conflict occurrences and thought of developing a negotiation platform for fostering collective action in conflict management in Ulanga. From FGD it seemed that, weaknesses on land use planning and poor participation of the stakeholders in land and other natural resources planning could be thought to be the contributing factors towards increased conflicts in the study area. It was further revealed that, Frontier Tanzania (NGO dealing with natural resource research) conducted land use planning in Minazini village but it was seriously rejected by the farmers and agropastoralists due to poor collaborations. All the four groups neglected sensitization of the stakeholders on the Village Land Act. This might be due to low awareness and little understanding of the Village Land Act as a few seemed to know land policy issues. Village councils have control and regulatory powers over the administration of village common lands. The creative linking of these provisions makes it possible for local communities to undertake decisions for their benefit, centered on the village council, perhaps through its land committee, as a local natural resource management institution. The district authority had failed to design strategies for

village land allocation to its stakeholders and perhaps the village authorities have full mandate over land with little feedback to the District authorities. Metcalfe *et al.*, (1998) found that, local government legislation in Tanzania creates village councils as basic units of local government, endows them with a legal personality and vests them with powers to manage natural resources in village lands.

4.6.2 Proposed rules and regulation for reducing conflict incidences

The proposed rules and regulations were as shown in Table 22. The respondents proposed various rules and regulations to be agreed jointly in efforts to reduce the land use conflicts in the valley. In Minazini village, majority suggested setting demarcations between livestock keepers and farmer's fields, while majority of the respondents in Igawa village found that it was better to restrict further livestock entry into their area. In general terms the other two options proposed were to register pastoralists with their livestock and to increase penalties to the ones violating the set laws. Respondents from Usangule and Misegese villages suggested that more emphasis should be on strengthening the established village resolution committees and educating people on Village Land Act. It was thought that, establishment of the rules and put them in practice will reduce the conflict incidences in the villages (Table 22). Lack of village register denies the villagers to estimate the population density and it also paves the way for illegal entrance and land encroachment. The conversion of the reserved land to village land without prior permission of the concerned authorities might be a weakness and could lead to new forms of conflicts in the near future between farm ers and pastoralists on one side and the Wild footprints Ltd and Kilombero Valley Teak Company on the other. Differences on proposed rules and regulations to reduce conflicts were found to be statistically significant at $p < 0.05$ with a chi-square value of 57.2.

Table 22: Proposed rules and regulation for reducing conflict incidences in the area

Responses	Villages				Total%
	Minazini%	Usangule%	Misegese%	Igawa%	
Increase land to farmers	0.0	6.7	3.4	3.3	3.4
Register pastoralists and livestock	10.0	13.3	13.8	13.3	12.6
Educate people on land acts	6.7	3.3	10.3	0.0	5.0
Establish strong VCRC	3.3	16.7	10.3	0.0	7.6
Isolate livestock and farms	23.3	20.0	6.9	6.7	14.3
Restrict livestock entry	10.0	6.7	24.1	60.0	25.2
Penalize brokers of the bylaws	20.0	13.3	6.9	3.3	10.9
Register incoming agropastoralists	0.0	0.0	0.0	10.0	2.5
Total	100.0	100.0	100.0	100.0	100.0

Chi-square= 57.2, $p < 0.05$

The suggested rules if set and used in joint agreement might contribute in fostering collective action for management of the conflicts. Since no efforts have been used to resolve the problem it is better to recognize all the land users and a participatory approach would be an effective method. There is a need to balance the stocking rate in the area and restricting further livestock entry into the area to avoid more conflicts. Obara and Jerkins (2006) outlined three processes; registration process, allocation and relocation and alternative and sustainable livelihoods as main approaches for land use dispute resolution solutions. The presence of weak or non functional village land councils have rendered the land users with little capacity to manage and use the land peacefully. Mearns *et al.* (2003) pointed out that herders' rights to resource must be guaranteed by law in different forms of collective tenure in order to increase tenure insecurities faced by pastoralists in Eastern Africa.

4.6.3 Land use planning in Ulanga district

Results revealed during FGD with key informants noted that, land use planning was conducted in Usangule, Misegese and Igawa villages. However, the maps prepared for the exercise were not accepted by both farmers and the agropastoralists due to poor or lack of stakeholders' collaboration. Villagers did not seem to abide by to the set demarcations which lead to continuous tress-passing by both parties and leading to conflict. In most cases the farmers and agropastoralists were eager and showed concern on low participation in land use planning and needed to be actively involved in the exercise at all stages. The area was lacking important services such as defined stock routes, cattle dips, charcoal dams and buffer zones between farmers and agropastoralists. The absence of these facilities also forced the agropastoralists to walk a long way to drinking water sources and to the auctions where they pass across the farms and thus stimulate conflicts.

4.6.3.1 Measures proposed for successful land use planning in Ulanga district

Measures to be taken to ensure successful implementation of land use planning in Ulanga district were as shown in Table 23. Most of the respondents showed their concern on a need to of conducting participatory land use planning in the area and they proposed rules and regulations that should govern the exercise in order to make it successful to all the land users. With participatory planning, the aim should be to reach a consensus between the groups of setting boundaries demarcating land for different uses and sensitize farmers and agropastoralists on the importance of land use planning. Across the occupational groups, majority proposed sensitization campaigns to be conducted as an initial entry point to settling of the disputes on land use as shown by 30.2% of the farming community and 42.9%, 37.5% of the farming and off farm group and agro-pastoralists, respectively. However, some respondents proposed to punishments to the villagers who oppose the interventions should be instituted and more important idea was to convince agro-

pastoralists to reduce the number of livestock in order to balance the land carrying capacity. However, there were no statistical differences at $p < 0.05$ on proposed measures to control conflicts across various occupations of the respondents.

Table 23: Measures for successful land use planning in Ulanga district

Responses	Occupation of respondents			Total %
	Farming %	Farming and off farm %	Agro pastoralism %	
Punish violators	18.9	7.1	6.3	12.2
Sensitization	30.2	42.9	37.5	34.8
Demarcate land	26.4	21.4	33.3	28.7
Construct livestock infrastructures	5.7	0.0	10.4	7.0
Train village leaders	7.5	7.1	4.2	6.1
Reduce livestock	11.3	21.4	8.3	11.3
Total	100.0	100.0	100.0	100.0

Chi-square= 9.09, $p=0.52$

From the discussions it could be implied that the magnitude of the problem is known by almost all stakeholders and it seemed they are ready to accept and participate in negotiations over resource uses in their area. Their readiness to accept collective action measures was also a promising achievement for the conflict resolution process. Their willingness to participate in the whole process of land use planning as seen during the FGD was a promising indicator for the stakeholders to accept the agreed upon interventions and contribute in various ways to achieve the shared goal. These could ease the task of identifying and introducing collective action strategies for conflict management that are accepted by all groups in the area. As Meinzen-Dick *et al.* (2004) mentioned, collective action is the easiest to institute if problems are identified and when there are clearly defined groups that takes part in the agreed actions to be executed collectively. On the other hand, when the stakeholders unite and impose joint decisions it might also be

easier to formulate formal and informal institutions to safeguard their decisions and strategies.

4.6.3.2 Proposed sustainable means on managing conflicts in the area

Sustainable management actions proposed by the different groups to avoid conflicts in the area were as shown in Table 24. The proposed mean include demarcating the area into special occupational areas (16%), and constructing infrastructures for smooth movement of animals as shown by 21.8% of the respondents. Equally important, formulation of Farmer-Agro-pastoralist Associations (FAAs) was also proposed to be a better tool that could be set as an organ for settling disputes between the two major groups and also be a negotiation platform whenever conflicts occur.

Table 24: Sustainable management of the area to avoid land use conflicts

Measures	Villages				Total %
	Minazini %	Usangule %	Misegese %	Igawa %	
Demarcate the area	23.3	12.9	14.3	13.3	16.0
Construct livestock infrastructures	10.0	32.3	25	20	21.8
Avoid corruption	3.3	6.5	3.6	3.3	4.2
Conduct livestock census	3.3	9.7	10.7	30.0	13.4
Acquire title deeds	13.3	6.5	7.1	0.0	6.7
Formulate FAAs	6.7	16.1	14.3	3.3	10.1
Restrict illegal migrants	10.0	3.2	7.1	0.0	5.0
Restrict livestock entry	0.0	0.0	7.1	10.0	4.2
Reduce livestock herds	30.0	12.9	10.7	16.7	17.6
Conserve the wetland	0.0	0.0	0.0	3.3	0.8
Total	100.0	100.0	100.0	100.0	100.0

Chi-square = 37.4, $p < 0.05$

At the end of the interview the respondents found it useful to give suggestions on how to manage the area in a sustainable manner in order to avoid land use conflicts. The Farmer-Agro-pastoralist Associations could form an entry point towards initiating collective actions for halting land use conflicts through a sequential set of strategies that will be set with the association.

Conducting livestock census and imposing a mechanism of reducing their number was also given more emphasis. Lack of committed formal and informal institutions might have necessitated the two parties to think on forming associations. However (6.7%) of the respondents proposed the need for farmers and pastoralists to be assisted in getting title deeds for the land they use as it is for the teak company and the Hunting Company who possessed right over the land but most of the farmers and agro-pastoralists had no title deeds. The proposed measures for sustainable management of the land use conflicts across villages were found to be statistically significant at $p < 0.05$. The current land use and tenure system in the study area limits mostly the farmers and the agro-pastoralists on getting benefits from their land and they have no defined ownership. The government is advocating towards the policy of having ranches for pastoralists with a view to provide better services and increase yield per animal like in Botswana. If agro-pastoralists could be convinced to reduce the number of livestock the likelihood of getting more profit per unit area are higher as FAO, (1998) documented that, few livestock per area under good management could produce more meat. During the FGD, it was suggested that district authorities should put more restrictions on livestock entry in the area and ensure transparency in the whole process on negotiations over resource uses in the area. It was also noted that in many cases village leaders were accepting the agro-pastoralists in the villages without the acknowledgement from the farmers, and thus out-cry of the farmers on livestock pressure was not accommodated and chances of corrupt leaders to violate rules on settling agro-pastoralists was high. The stakeholders' felt that, if well implemented collectively this measures would bring about peace and eventually sustainable utilization of the land resources in the villages along the Kilombero Valley.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Overview

This chapter presents summary of the major findings, conclusions and recommendations of the study for fostering collective actions in conflict management for sustainable land use planning in Ulanga district. The general objective of this study was to analyze collective action strategies in land use conflicts for sustainable land use planning and management in Ulanga District. Specifically, the study intended to: (i) identify prominent land use types of land occupied by conflicting groups in Ulanga district, (ii) describe land use dynamics and migration patterns of conflicting groups in Ulanga District, (iii) identify key factors for escalating conflict prevalence in the study area, (iv) identify formal and informal institutions for conflict management practices. Therefore, summary of the major findings, conclusions and recommendations are presented based on the study objectives.

5.2 Summary of the Major Findings

5.2.1 Land use types in the study area

The prominent land use types in Ulanga district were crop production, livestock keeping, game conservation and hunting, forest reserves, forest plantation and for residential purposes. Land use types and land rights had no strict rules and regulations and villagers were found to be aware of the land use and they had forecasted for the betterment of the future generation due to the land use problems they were starting to face. Teak plantations in Ulanga had been established in arable land which was suitable for crop production and hence denying farmers with the opportunity to expand their plots as they used to do before. Most livestock keepers settled in Ulanga for they got enough pastures and water for their livestock. Both farmers and agropastoralists practiced shifting cultivation and

grazing, respectively. Mono cropping was common among the purely farming communities and some of them tended to fallow the land to avoid increased weed seed bank and depletion of soil fertility. The agropastoralists preferred individual and communal ownership of land while farmers preferred private ownership for future use by other household members. The potentiality of the area to crop production has caused encroachment of the reserved land and thus causing land use conflicts.

5.2.2 Land use dynamics and migration pattern

Although majority of the respondents owned between one to 20 acres, they still needed extra land. Moreover, establishment of the teak plantations and Kilombero game controlled area had greatly affected the availability of land for crop production and pasture. The remaining proportion of arable land can't support the livestock herds for pasture throughout the year therefore the pastoralists graze in undesignated areas. It was however iterated that, the situation changed before the coming of the agro-pastoralists and the Hunting Company and thus land use practices are different and scarcity has emerged. Land needs have been increasing with increasing immigrants and livestock in the area.

5.2.3 Key factors escalating conflict prevalence in Ulanga district

Land use conflicts occurrence in Ulanga was periodical and more intense during shortages of pastures and water for livestock. Land use conflicts were mainly due to lack of proper land use planning and livestock overstocking. Organization on grazing pattern could help reduce conflicts if demarcations were set to isolate farmers from agro-pastoralists. Overstocking forced people to illegal influx of livestock in the area and with no defined land use planning, chances of eruptions of conflicts are increased. There was no sensitization that has been carried out by the village government leaders and by the farmers or agro-pastoralists to facilitate smooth negotiation on resource use in the area.

The increase in the livestock numbers beyond the carrying capacity caused conflict between farmers, agropastoralists, hunting company and the teak company altogether. Fighting incidences were higher during April to June when the valley is flooded and pasture is selectively obtained. Frequent eruption of conflicts might have been contributed partly by the District Council lacking strategies and interventions to cease land use conflicts in the district. Lack of effective and motivated conflict resolution committees at village level and reliance on the village government leaders for handling this matter might be a major weakness. Again, rampant land allocation to farmers near the hunting blocks and around the grazing land could also be a predisposing factor to land use conflicts. Mainly land use conflicts were shown to occur in January to March when most of the land is covered with crops and July to September as this period coincided with the dry spell that exhibited low supply for both pastures and water. Although land use conflicts are reported to be common in Ulanga district, they are found to vary greatly in occurrence and severity from one place to another.

From the regression analysis increase in age of the respondents, increased family sizes were positively correlated to increased conflicts. Lowly educated respondents were likely to have difficulties in settling conflicts and having many immigrants into the area also highly influenced conflict escalations. Farm size though not statistically significant showed to have a bearing effect on conflict escalations.

5.2.4 Formal and informal institutions for conflict management practices

Methods employed in managing conflicts included penalties set for the individuals found to be the causes of the conflicts and some settled their disputes with assistance of village governments. For worse situations of conflicts matters were forwarded to the police and court. Sensitizing on peaceful stay and convincing livestock keepers to destock their

animals have been also used to as a step towards reducing forthcoming conflicts. Penalties and compensations have been purposely designed to enable the village government to boost their accounts with the money accrued from the penalties.

5.3 Conclusions

Generally in all the surveyed area, formal and informal institutions for conflict management were put in place. The institutions include the formal institutions that are village government and the environmental management committee operating under the village government. Many disputes in relation to conflicts between groups in the area were formally handled by the two institutions. However, in addition to the formally established institutions, customary authorities for conflict management were used. Additional initiatives were also reported like establishing farmer and grazing management groups which were seen to be new avenues for negotiations over resource use in the study area. Sometimes in rare cases local leaders were involved particularly when the situation involved ethnic groups.

Failure in effective utilization of the formulated committees and the customary authority might have impaired conflict management in the district. Respondents relied on village protection while others showed that they processed village user right and had customary rights as their land protection modes. Generally land tenure system was complex and most of the land was under the village government and the majority of the agro-pastoralists acquired land from their fellows without registering into the village register. Frontier Tanzania, an NGO in the study area, conducted land use planning in Minazini village but it was seriously rejected by the farmers and agropastoralists due to poor collaborations. Generally, there were eight ethnic groups, but three of them came from outside Morogoro Region. More than half of the respondents were immigrants with Igawa having the highest

proportion of immigrants. The study also conclude that closer to half of the respondents had farming as their main occupation, followed by Agropastoralism and this implied that crop production and livestock keeping were the main economic activities in the study area. Minazini village had the highest proportion of farmers and just a fraction accounted for pure pastoralist. Igawa and Usangule villages had the highest proportion of agropastoralists in the area.

The ownership of plots for agricultural activities varied from one to five plots per household depending on the labour force, working tools and purpose for the plots. However, numbers of plots owned were low for the Minazini and Usangule villages. The presence of teak plantations and increased livestock heads might have also contributed in reduction of number of plots owned, and for Minazini and Usangule the presence of WFP Ltd and continuous increase in livestock impaired further acquisition of land for crop production and grazing, as most of WFP areas are protected.

The study revealed that the population of Wasukuma had grown significantly in recent years and has exceeded the combined population of Wandamba and Wapogoro. This increase necessitated acquisition of more land for crop cultivation and pasture for livestock. The Wasukuma who were found to be wealthier, polygamists and owned big herds of livestock seemed to occupy more land. Their financial capacity enabled them to purchase or acquire big plots for their entire families while the deprived who are the indigenous had no capacity for increasing land sizes and those residing adjacent to the agropastoralists had their crops destroyed by livestock. The combination of this factors resulted into frequent land use conflicts between the agropastoralists and indigenous farmers in the study area.

5.4 Recommendations

Sustainable management actions proposed by the different groups to avoid conflicts in the area included demarcating the area into special occupational areas and constructing infrastructures for smooth movement of animals. Equally important, formulation of Farmer-Agro-pastoralist Associations (FAAs) was also proposed to be a better tool that could be set as an organ for settling disputes between the two major groups and also be a negotiation platform whenever conflicts occur. Conducting livestock census and imposing a mechanism of reducing their number was also given more emphasis. The current land use and tenure system in the study area limited farmers and the agro-pastoralists on getting benefits from their land and they had no defined ownership.

Therefore, this study recommends the following.

- i) Authorities, leaders and the community should be sensitized on the village land act 1999 for equipping their villages with conflict resolution committees with full mandate to carry out their work. Land tenure rights should be emphasized to enhance individual land ownership rather than communal.
- ii) Due to increasing livestock populations the district authorities should design ways for restricting new influx of livestock and also all new migrants should be registered and rules and regulation should be set as measures for controlling movement of livestock
- iii) The district authority should provide essential services required by the agro-pastoralist community. Facilities like cattle dips should be constructed in such a way that agro-pastoralists will contribute costs and form service user associations to enhance the sense of ownership and management. Stock routes should be

identified for smooth movement of animals to watering points and to auction centres.

- iv) Negotiation platform involving all the four land use parties should be established to discuss and design strategies towards sustainable land use in the area and conflict management in the area. Through the negotiation platform collective decisions reached will lead to develop collective action decisions for continued peaceful stay and sustainable resource utilization in the area.
- v) Committees should be created and emphasized to work for safeguarding the interest of each group.

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APPENDICES

Appendix 1: Questionnaire for farmers and agro-pastoralists

A: Background

1.1 Basic respondent's information

Date of interview	Village/Sub village names	Division
Household code	Name	Ethnicity
Respondents age (years)	Respondents Gender	
	(1)=Male (2)=Female	
Age of HH(Years)	Gender of household head	Origin of household head
	[1]Male [2]Female	[1]Native [2]Immigrant If immigrant, how long have the hhh been in this village(Years)

1.2 Members of household currently resident

Name	Age(Years)	Sex	Relationship	Education	Occupation
1		[1]Male	1=Head	1=None	1=Child
2		[2]Female	2=Wife	2=Std IV	2=Student
3			3=Husband	3=Std VII	3=Farmer
4			4=Child	4=Secondar	4=Pastoralist
5			5=Other	y	5=Agro
6			relatives	5=Higher	pastoralist
7			6=None	education	6=Non farm
8			relative		
9					
10					
11					
Total resident household					

1.3 Main occupation of the Household Head

1. Farming
2. Farming and off farm
3. Pastoralism
4. Agropastoralism
5. Off farm only

6. Others (Specify)

B: Land use and Farming system**2: Crop land owned and operated by the household**

2.1. How did you obtain your land?

1=Inherited

2=Purchased

3=Village government

4=Borrowed

2.2 Total land owned by the household

Field	Area	Ownership	Rent in land	Rent Out Land	Major crops	Production domain
	Area of each field or plot in (acres)	1=owned(idle) 2=owned(used) 3=own(rented out) 4=Rented in 5=Borrowed	Amount paid (Tshs)	Amount received (Tshs)	Crops	1=Dry season 2=Rain season
1						
2						
3						
4						
5						
Total number of plots(Sum codes 1-3 under ownership)			Total area owned		Total area used for farming(including land rented in or borrowed)	

C: Migration pattern

3. For how long have you been using this land?

1. Less than a year

2. 1- 5 years

3. 6- 10 years

4. More than 10 years

4. Where were you before settling in this area?

- 1. Mbeya
- 2. Rukwa
- 3. Shinyanga
- 4. Other (specify).....

5. What are the incentives that attracted you to stay or migrate into this village?

- 1. Pasture
- 2. Water
- 3. Land for crops
- 4. Good weather
- 5. Other (specify).....

6. Has in-migration of other stakeholders into the village affected the land you had traditionally?

- 1. Yes
- 2. No

7. Is the land adequate for your activities?

- 1. Yes
- 2. No

7.1. If land is not adequate, how do you manage such scarcity?

- 1. Borrow
- 2. Reduce number of animals
- 3. Reduce crops
- 4. Other (specify).....

7.2. How much additional land do you need (acres) in order to be comfortable?

.....

D: Conflict management

8. How often do you experience land use conflicts in this area?

- 1. 1-5 times a month
- 2. 1-3 a month
- 3. At most 2

4. Not at all

9. What are the main causes of the land use conflicts in this area?

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

10. What is the period with high incidence of land use conflicts?

- 1. January to March
- 2. April to June
- 3. July to September
- 4. October to December

11. In which land do these conflicts commonly occurring?

- 1. In the Teak Plantations
- 2. In the Game Controlled area
- 3. Harvested fields
- 4. Farms
- 5. Open access land
- 6. Other (specify).....

12. Is there another better method of managing these conflicts in order to maintain peace?

- 1. Yes
- 2. No

13. If yes, how do you manage these conflicts in your area?

- 1
- 2
- 3.....

14. Which general solutions do you think are the long-term solution for managing these conflicts in your area?

.....

.....

E: Formal and informal institutions for conflict management

15. Which institution(s) regulate land use in the village?

- 1. Customary authority
- 2. Farmers' groups'
- 3. Grazing management group
- 4. Formal institution set by government
- 5. Other.....

16. Do you have any institutional right/certificate to land ownership?

- 1. Yes
- 2. No

17. What institutional right do you have over your land?

- 1. Village user right
- 2. Customary right
- 3. Village protection
- 4. Other (specify).....

18. How does such right (in 19 above) influence your investment decisions with regard to land utilization?

- 1. Expanding land
- 2. Improving land
- 3. Diversifying the investment
- 4. Other (specify).....

19. Do you have livestock in this area?

- 1. Yes
- 2. No

20. Where do you graze your livestock?

- 1. Fallow land
- 2. Game Controlled area
- 3. Communal grazing land

- 4. Open access land
- 5. Harvested fields
- 6. Others (specify).....

21. Do you graze on harvested fields?

- 1. Yes
- 2. No

If yes indicate time of the year this is done.....

22. If yes, what arrangements do you normally follow to be allowed by the owner?

- 1. Purchase
- 2. Request for free permission
- 3. Do not request
- 4. Other (Specify).....

23. What do you normally do when permission is not granted?

.....
.....

24. What happens when you enter harvested fields without permission?

.....

25. Do you normally end up with conflicts with the owner of the harvested fields?

- 1. Yes
- 2. No

26. If yes, please explain the type of conflicts encountered

.....

27. Do you normally solve the conflicts before they get worse?

- 1. Yes
- 2. No

28. If yes, how are they solved?

.....

29. Are you satisfied with the way conflicts are solved?

- 1. Yes
- 2. No

30. Which types of crops do you grow in your fields?

- 1. Annual
- 2. Perennial
- 3. Both
- 4. Other (specify).....

31. Do you allow pastoralists to feed their livestock on crop residues and on your fallow land?

- 1. Yes
- 2. No

32. If yes in 31 above, in what terms do you allow pastoralists to use your crop residues?

- 1. Purchase
- 2. Free of charge
- 3. No negotiation
- 4. Other (specify).....

33. If no in 32 above, do they graze their livestock in your field without permission?

- 1. Yes
- 2. No

34. If yes, what measures do you take?

- 1. Report to the authorities
- 2. Keep quiet
- 3. Chase the pastoralists
- 4. Other (specify).....

35. How far is your farm from the grazing land?

- 1. Less than a km

- 2. About 1 to 5 km
- 3. More than 5kms

36. Is there a defined stock route to the auctions and to the outside the district?

- 1. Yes
- 2. No

37. Is there any institution for management of conflicts?

- 1. Yes
- 2. No

38. If yes, do you use them in solving this problem in your area?

- 1. Yes
- 2. No

Fostering collective action

39. Did you ever sit together and discuss this matter together?

- 1. Yes
- 2. No

40. Do you think it is important to bring all land users together to settle this problem?

- 1. Yes
- 2. No

41. If yes, what are the main issues to discuss about this problem?

.....
.....

If no why

.....
.....

42. Have you ever get technical assistance from the district authority about this problem?

- 1. Yes
- 2. No

43. What was its usefulness on this problem?

.....
.....

44. Do you need new joint rules and regulations in this agreement?

- 1. Yes
- 2. No

45. If yes, what are the rules and regulations that you think will be agreed together in order to be successful?

.....

46. Is land use planning a necessary intervention in this matter?

- 1. Yes
- 2. No

47. If yes, how can you make this a success among yourselves?

.....
.....

Under what rules and regulation do you think the above mentioned strategy be implemented?

.....

48. Please, give your comments on how to use this area in a more sustainable manner to avoid conflicts

.....

Thank you for your cooperation

Appendix 2: Checklist questions for Focus Group Discussion**A: Land use dynamics and migration patterns.**

1. What are the main land use types in this area?
2. What were the main farming systems before the coming of the agro-pastoralists, the hunting company and KVTC?
3. Did you experience conflicts over land in those days?
4. What were the causes of the conflicts?
5. How did you manage the conflicts?
6. When did the agro-pastoralists started coming in this area?
7. After the coming of the agro-pastoralists, what are the prominent farming systems?
8. Is there any more agro-pastoralists coming into this area?
9. Are you comfortable with the farming system you are practicing nowadays?

B: Conflict incidences and mediation in the area

1. What are the key factors for conflict incidences in the area?
2. What are the procedures used for mediation of the conflicts?
3. Are you satisfied with the methods used to mediate these conflicts?
4. Does the investors (Wild Footprints Limited and KVTC) contribute to these conflicts and how?
5. How do you discuss this issue with them?

6. What do you think will be the best way for conflict mediation?

C: Formal and informal institutions for conflict management practices

1. What are they in this area?

2. Who forms and maintain these rules?

3. What are the rules and regulations associated with them?

4. What are the penalties for the brokers of these regulations or rules?

5. What are the strengths and weaknesses of these rules in conflict management?

6. What are the alternative methods that you think will be more effective than the present ones?

D: Governance and accountability

1. Who mediate conflicts in the village?

2. Who mediate these conflicts?

3. How are they mediated?

4. Are the people satisfied with the methods used to mediate the conflicts?

5. Are there any possibilities of corruption in this exercise?

6. What kind of corruption?

7. Who receives and who pays?

Appendix 3: Checklist questions for key informants

A: Check list to Police and Court magistrate Officers

1. How many numbers of cases of land use conflicts are reported to your office per month?
2. Who are main reporters of these cases?
3. What actions are taken by your office to settle the problems?
4. Which group (Farmers, pastoralists) is more responsible in the causes of these conflicts?
5. What do you think are the key factors contributing to these conflicts?

Thank you for your cooperation

B: Checklist for village and ward authority

1. Do you receive land use conflict cases in your office?
2. Who reports these cases?
3. How do you handle them to make sure there is a fair play?
4. How are the incidences increases or decrease over time?
5. What are your opinions for management of these conflicts?

Thank you for your cooperation

C: Checklist for KVTC and WFL

1. Do you experience conflicts with farmers and pastoralists?
2. What are the causes of these conflicts?
3. How do you handle them to maintain peace in this area?
4. What do you think is the best approach to mediate these conflicts?

Thank you for your cooperation

Appendix 4: Court cases which were in court in Ulanga district for the conflict of Hunting Company, agro-pastoralists and farmers

The following is a summary of court cases involving disputes between farmers and pastoralists that have reached the district court up to April 2004.

Date	Summary of case details	Place of occurrence
31/12/2002	Four farmers entered in the agro-pastoralists land and cultivated	Nanji-Iragua
31/12/2002	A fellow agro-pastoralist in the hunting block beat Godwell Sungura where they were fighting for the farm	Kirisa-Mtimbira
13/05/2003	Poaching: Emmanuel Clement was caught with hooks and puku meat inside a hunting block	Ngombo
18/12/2003	Omari Kologaki (farmer) was beaten by agropastoralists and he died on 30/01/2004	Malinyi
17/06/2004	Luguna Kapunda was caught with a shot gun greener No 69656CAR42450 inside a hunting block	Mtimbira-Likea
03/07/2004	Lutonja Matana who was herding cattles inside the hunting block had his life threatened by 20 people carrying spears and a bush knife	Itete Njiwa
30/07/2004	Chisandu Kuwoko was caught with 10 pieces of zebras meat	Iragua

Source: DAS-Ulanga