ANALYSIS OF RESOURCE USE CONFLICTS BETWEEN THE PASTORALISTS AND OTHER STAKEHOLDERS IN SIMANJIRO

BY

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ABSTRACT

Conflicts over natural resources seem to be increasing in our modern world. These conflicts ensue when the supply of natural resource base falls short of the prevailing demand. This study attempted to analyse the resource-use conflicts between pastoralists and farmers in Simanjiro District. Specifically it aimed at identifying the nature and causes of conflicts, assess effects of conflicts, determine steps taken to resolve conflicts and finally identify role of governance in arresting these conflicts with regard to corruption, transparency and participation. Both primary and secondary data were collected. A Statistical Package for Social Sciences (SPSS) was used to analyse the data. Descriptive statistics such as mean cross tabulation and simple statistical trends were used to present the results, while econometric analysis such as logistic regression and cluster analysis were used to confirm the results. The study results indicated that nature and cause of resource-use conflicts revolved around different livelihood groups. The nature of conflict which significantly ($p< 0.05$) existed in the study area were: farmers' disputes over farm plots, herders' conflicts over water use, and farmers' and herders' conflicts over land use were major causes of conflict in the study area. The major effect of land and water use conflicts is poor social relationship and mutual understanding among different stakeholders'. Steps undertaken in resolving conflicts depend on the nature and magnitude of the conflicts, with both farmers and pastoralists preferring interpersonal agreements in conflict resolution and detesting the police and/or court cases. The study also established a low level of participation on land matters by community members caused by corruption and lack of transparency by leadership. The study recommends introduction of land policies that recognise and safeguard the interest and cater for the needs of pastoralists coupled by land use education, investigation of corruption and emphasise personal conflict intervention as a sustainable measure to combat resource use conflicts in the study area.

DECLARATION

I SARUNI, LUKA PARIT, do hereby declare to the Senate of Sokoine University of Agriculture that this dissertation is a result of my original work and has never been submitted for a degree award at any other University.

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19/11/2007
Date

The above declaration is confirmed

Dr. Hella, J. P.
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19/11/2007
Date

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LIST OF ABBREVIATIONS AND ACRONYMS

ASR	-	Agreement for Sharing Resources
CWS	-	Canadian Wildlife Service
DCL	-	Dam Construction For Livestock Use
DSI	-	Development Studies Institute
EAC	-	East Africa Community
ECAPAPA	-	East and Central Africa Programme for Agriculture Policy Analysis
ECF	-	East Coast Fever
ELP	-	Education and Land Use Planning
ENR	-	Elders, Neighbours and Relatives
FAO	-	Food and Agriculture Organisation
FGDs	-	Focus Group Discussions
FHCD	-	Fining Herders For Crop Damage
FWA	-	Fair Water Allocation Procedures
GPF	-	Global Policy Forum
IRIN	-	Integrated Regional Information Network
LAMP	-	Land Management Programme
MCF	-	Malignant Catarrh Fever
MDGs	-	Millennium Development Goals
MEM	-	*Maendeleo ya Elimu ya Msingi*
MKUKUTA	-	*Mkakati wa Kukuza Uchumi na Kupungunza Umaskini Tanzania*
MSTHE	-	Ministry of Science, Technology and Higher Education
NEMC	-	National Environment Management Council

NGOs	-	Non-Governmental Organizations
NSGPR	-	National Strategy for Growth and Reduction Of Poverty
ODI	-	Overseas Development Institute
OECD	-	Organization for Economic Cooperation and Development
OP	-	Operation *Vijiji*
PAD	-	Peace and Development Platform
PC	-	Primary Courts
PPA	-	Participatory Poverty Assessment
PRA	-	Participatory Rural Appraisal
SSA	-	sub-Sahara Africa
SUA	-	Sokoine University of Agriculture
TDV (2025)	-	Tanzania Development Vision 2025
TPC	-	Tanganyika Planting Company
TWT	-	Improve Water Availability
UPE	-	Universal Primary Education
URT	-	United Republic of Tanzania
VCC	-	Village Community Committee
VEO	-	Village Executive Officer
WT	-	Ward Tribunal

CHAPTER ONE

INTRODUCTION

1.1 Background

Conflicts over natural resources seem to be increasing through out the world. The situation is international and inevitable. According to Mvena *et al.* (2003) conflicts generally ensue when the supply of resources fall short of the prevailing demand. This view is supported by the Global Policy Forum (GPF) (2003) asserting that, increasing scarcity of resources, driven by rising world population and the spread of unsustainable consumption levels, further sharpen such conflicts.

Recently there has been a convergence of a number of interests, from both national and international levels, towards land acquisition in semi-arid areas like Simanjiro hence leading to transformation in land use type. Bagachwa and Limbu (1995) found that there was pressure from agricultural migrants to move into relatively drier areas, which in good years give useful yields. These invaded lands, form the prime areas for grazing cattle. The land is found near water sources such as rivers, shallow wells and dams.

The Maasai pastoralists are the dominant inhabitants of Simanjiro District. The discovery of precious stones, along side the commencement of farming activities in the District, however, have attracted large numbers of immigrants whose interest and values are inversely proportional with those of the Maasai pastoralists. These trends have resulted into marginal land to become an item of considered speculation, leading to conflicts between the immigrants (farmers) and pastoralists over management and utilization of the available resources.

Literature on the plight of the pastoralism is available. Sikar (1995) reported that pastoralists have been restricted, barred and confined from the proximity of their land over which they now apparently have no acknowledged legal rights. According to United Republic of Tanzania (URT) (2005) report on Participatory Poverty Assessment (PPA) conducted in Simanjiro in 2002/03.Conflicts have also come from attempts by wildlife authorities and other conservation interests trying to gain more control on land resource in some villages notably Loiborsoit "A" and Emboreet villages for exclusive use by wildlife. Thus Pastoralists have found themselves at loggerhead with park's authority.

The influx of immigrants has worsened the situation mainly because of diversity in what Sikar (1995) found that the local pastoral control of water resources works because it is based on principles of equal and fair rights and responsibilities to share among all herders in need of water for their stock. Control by immigrants from non-pastoralists societies has meant exclusion of the pastoralists and this has only led to conflict.

1.2 Problem statement and justification

Land and water are vital resources for increased and sustainable agriculture anywhere in the world. The resources are declining with time as demand for their use is rising; hence a predisposing factor to conflict worldwide. Bujra (2002) found that, the common rural conflicts are over grazing land, over cattle, over water points and cultivable land and that; these rural conflicts are most wide spread than political conflicts frequently reported in Africa. He categorizes rural conflicts under four groups: (a) conflicts among pastoralists, (b) conflicts among the farmers, (c) conflicts between pastoralists and farmers and (d) conflicts between state institutions with farmers and/or pastoralists.

The Tanzania Development Vision (TDV) 2025 states that; "Peace, stability and security of citizens and their property constitute a fundamental and necessary environment for development" (URT, 2005). Commission for Africa (2005) further points out that; without much greater and more investment in preventing the emergence, spread and repetition of violent conflict, Africa and the international community cannot hope to achieve their development goals such as Millennium Development Goals (MDGs) and *Mkakati wa Kukuza Uchumi na Kupunguza Umaskini Tanzania (MKUKUTA)*, hence Africans will continue to be deprived of their basic human rights. In keeping with the above national and international goals, an understanding of the nature and causes of these conflicts is necessary, if we are to manage the conflicts well. When these conflicts are well managed, productivity will increase resulting in increased revenue to various stakeholders including the government.

Simanjiro is a semi-arid area with average annual rainfall of about 400mm and water is a scarce resource leading to conflicts among pastoralists themselves and between farmers and herders. However the district has been riddled with conflicts ever since the introduction of other land use systems apart from pastoralism. The current land use system in the area includes agro-pastoralism, large-scale farming, and wildlife management, mining and hunting blocks. According to Food and Agriculture Organization FAO (2002) about 85% of the population is pastoralist; agro- pastoralists are mainly migrants. A survey carried out by FAO in 2002/03 revealed that in recent years, there has been an increase in large-scale farms in Simanjiro. A view further supported by Bagachwa and Limbu (1995) and Sikar (1995) suggesting that land use is a key issue and the alienation of land is a source of considerable tension. By 1994 over 50 000 ha of land had been alienated in the district for about 80 large scale farms ranging from 90 and 13 000 ha. Some of these farms

either have some of the water sources which livestock depends on, or are positioned at points where they block access to these water sources for livestock (URT, 2005).

The resource use conflicts in Simanjiro are multi-faceted and complex in nature, but information on the nature and causes of these conflicts is scanty. This study hence sought to address conflicts between farmers and pastoralists in the district, then coming up with recommendations for resolving the problem. However the study focused on land and water-use conflicts between the Maasai and the immigrants farmers. The role of governance in fuelling these conflicts was also investigated alongside the nature and causes of these conflicts among the members of different livelihoods groups particularly farmers and livestock keepers. Behind this scenario that the study was proposed so that recommendations that will assist in resolving the problem to sustain, peace and stability in the area as one of the key issues enshrined in the Tanzania Vision 2025.

1.3 Objectives of the study

1.3.1. General objective

The general objective of the study was to investigate the nature and causes of resource use conflicts between the pastoralists and other stakeholders in Simanjiro District.

1.3.2 Specific objectives

Specifically this study intended to:

(i) Identify the nature and causes of conflicts between different stakeholders

(ii) Assess the effects of land and water conflicts on rural population livelihoods.

(iii) Determine steps taken by different stakeholders to resolve the conflicts.

(iv) Analyse the role of governance in enhancing/ or arresting land and water use conflicts.

1.3.3 Study questions

Based on the specific objectives the following questions guided the research.

i. What are the main causes of land use conflicts in the study area in respect to agriculture and livestock production?
ii. What steps are undertaken by the stakeholders to resolve these conflicts?
iii. What is the role of governance in land and water conflicts?
iv. What are the effects of land-water conflicts on the livelihood of rural population?

1.4 Organization of the dissertation

This dissertation is organised in five chapters, each of which is divided in sections. After this Chapter One the literature review has been presented in Chapter Two where references from some authors who have written about same subject. Chapter Three presents the methodology used in this study. In this Chapter, description of the location of the study area is presented, sampling methods applied are elaborated, and methods of data collection and analysis are described. Chapter Four presents the finding of the study and the discussion guided by the specific objectives and study questions. Finally Chapter Five presents conclusions and recommendation(s) that emerged from this report.

1.5 Summary

This Chapter has presented a brief background information covering resource-use conflict situation at global level in general and Simanjiro District in particular. Statement of the problem has been presented. The problem is centred on the fact that the nature and causes

of resource-use conflict are multifaceted and complex in nature yet the information is scanty. This knowledge gap was identified to be the main problem directing this study. These were followed with statement of research objective.

CHAPTER TWO

LITERATURE REVIEW

2.1 Conceptual framework

The study to analyse resource use conflict between pastoralists and other stakeholders is centred on three groups of variables; (background, independent and dependent variables).The framework depicting their relationship is presented in Figure 1 below.

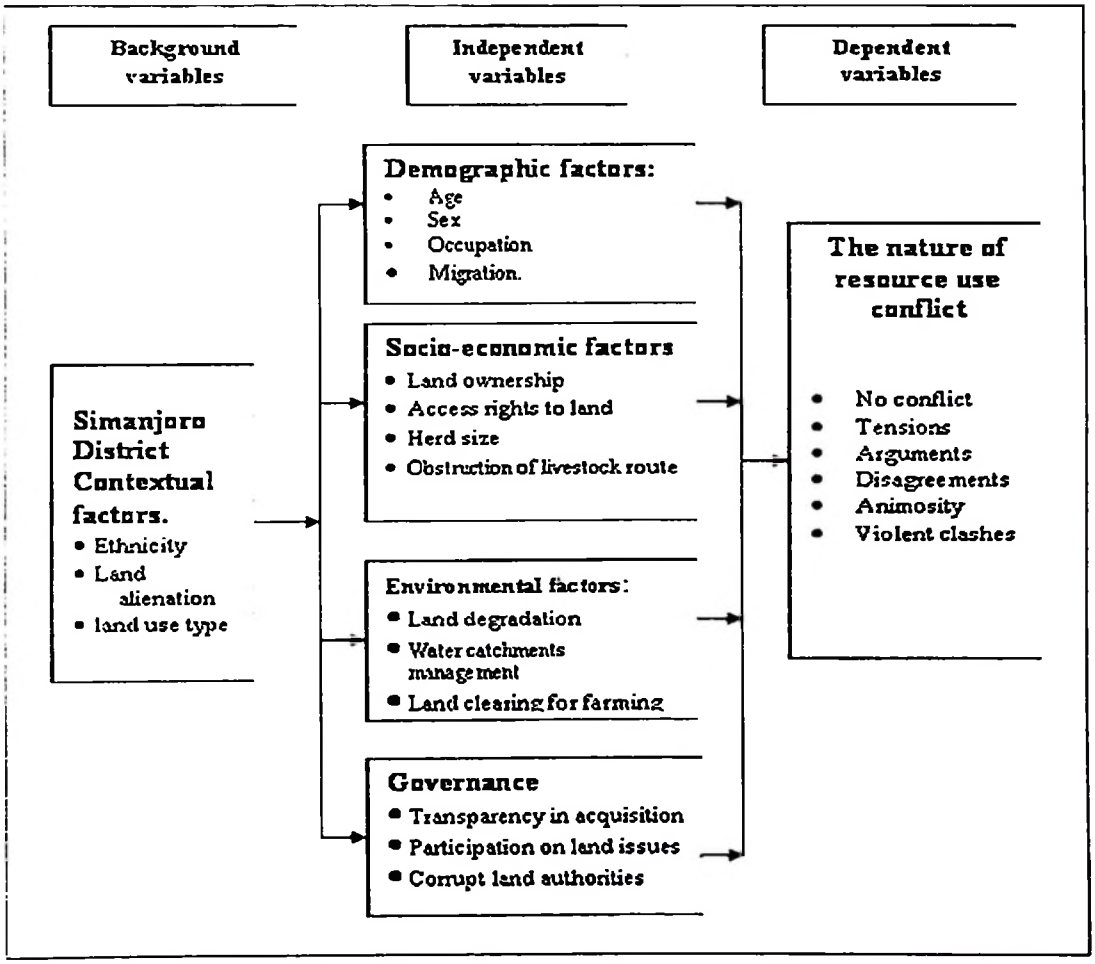

Figure 1: The conceptual framework for an analysis of resource use conflicts among pastoralists and other stakeholders in Simanjiro District

Three variables were used to describe the background characteristics of the respondents. Fourteen variables were used as proximate determinant of resource conflicts. These are categorized into demographic factors like occupation and sex of the household head, socio-economic factors such as land ownership and herd size of the household. Environmental factors like management of water catchments and land degradation and finally governance dimensions such as transparency and corruption. The respective categories contain four, four, three and three variables respectively. The primary objective was to find out the relationship between the independent variables on resource use conflict. There is also a possibility for the background variables to influence resource use conflicts indirectly. This means that there is need to analyse an interaction of the various variables in resource use conflict between pastoralists and other stakeholders.

2.2 Nature and causes of resource-use conflicts

It is generally accepted that where there are competing uses for a resource, some amount of conflict may be imminent. This is even more so when the resource in question is land, which can be put into different productive uses (Gefu and Kolawole, 2002). Much of the conflict has to do with the increasing shortage of pasture and water (Bekele, 2000) Nature and causes of conflicts over scarce land and water resources for livelihood differ from one place to another; from ownership disputes between or among the livelihoods groups or classes, to competition for access to use of resources for livelihood activities (Kunt and Cook, 1999). Mohammed (1999) found that the relative weight of those factors varies from one region to another, depending on the importance of that specific factor initiating conflicts. However, Masin (2003) contends that conflicts can originate from past rivalries and personality differences; but other causes of conflict include trying to negotiate before the timing is right or before needed information is available Majzoub (2005) reported that

many of Sudan's conflicts are tribal based. In the Darfur region this is particularly the case and outbreaks of fighting between farmers and pastoralists in the area are frequent. Hostilities are exacerbated by drought, which shrinks the pasturelands, causing nomads to break in to farmers' crops and let their herds feed.

2.3 Extent of rural conflicts

2.3.1 Effects of resource use conflicts

The analysis of any conflict is subject to variation in the theoretical view on outcome of conflicts. It is, therefore inappropriate to conclude that all conflicts are either good or bad. Whether a conflict is good or bad depends on the way it is handled Canadian Wildlife Service (CWS, 1998). While the interactionists believe that conflict is an essential part of human relations, it does not necessarily follow that all conflicts are good. If a conflict leads to improved group performance in achieving goals, then is a functional constructive form of conflict. But where a conflict hinders the achievement of goals then the conflict is destructive or dysfunctional. The measure that can differentiate functional from dysfunctional conflicts is group performance, as groups exist to achieve goals. As such it is the impact that conflict has on the group that defines whether the conflict is functional or not (CWS, 1998).

Conflicts are one cause for the economic underdevelopment of the African continent. Conflict contributes to the unravelling of the economic fabric at the local and international levels, the fight for investment capital, and human resources, the breaking of national and business, and unemployment.

2.3.2 Conflict resolution

The method used in resolving conflict depends on the nature and magnitude of the conflict. Gefu and Kolawole, (1997) observed that places with a high cattle population recorded the highest cases of conflict between pastoralists and farmers due to limited dry season grazing resources. However, Renner (1999) argues that true peace depends on more than the guns falling silent; it requires justice and equity, and a sufficient degree of human wellbeing. Bujra (2001) argues that most rural conflicts go unnoticed and unreported–unless large scale killing and injuries take place and the state intervenes militarily. Lester (1993) argues that the struggle for water scarcity will have no winners until the societies recognize water's natural limits and beginning to bring human numbers and wants into line with them. However Akiwumi (2001), contends that if conflict cannot be alleviated or resolved, sustainable water resources development may be an unattainable goal. Kajembe, *et al.*, (2004) emphasize that increasing transparency on the part of government officials and participatory approaches and involvement of the stakeholders in decision making will minimize the resource conflicts. According to (Reychler, 1998 cited by Kapinga 2003), short term measures are those, which involve putting to an end to a conflict situation through peace negotiations; peace agreements and reconciliation and implementation of peace agreement.

2.4 Land alienation and water conflicts between farmers and pastoralists

The process of colonization was accompanied by a major alienation of land from African smallholders, especially in Kenya, Zimbabwe and South Africa. Indigenous populations ultimately responded with violent opposition, leading to the partial redistribution of such land after independence. Large agricultural schemes were subsequently established in some countries. For instance, in Ethiopia, tractorised farms were established during the

civil war to produce food to pay for arms imports. In Tanzania, the government established large- scale wheat farms with the assistance of the Canadian government. These have displaced considerable numbers of pastoralists whose case has been taken up by various international organisations, a trend likely to spread to other sectors and countries in future (Rogers, 1996). Pastoral communities face a multitude of problems, ranging from land alienation, degraded resources, acute poverty, conflict and insecurity, vulnerability to drought, poor social services, and limited marketing opportunities (East and Central Africa Programme for Agriculture Policy (ECAPAPA), 2005). In rural areas reduced access to good land and water lead to poverty and conflicts (Madulu 2002). Kajembe *et al.* (2003) observed that conflicts over natural resources such as land and water are ever present throughout the world. People everywhere have competed for natural resources to enhance their livelihood. For example Amadoi (2005) found that in Karamoja a semi–arid area in the northern part of Uganda, most people make a living through agro–pastoralism, combining extensive livestock herding with seasonal cultivation of cereals, on communally owned land which is a common practice.

2.4.1 Land ownership

Land ownership is, generally understood, to imply a right to use land or benefit from it, but this right can be seen as relational, because it is often held negatively and conflictually against "the other" (Bromley 2003). Inequalities of holding property and property rights have led to many conflicts, especially in specific places where people have different production systems (Lund 2002).

2.4.2 Access rights to land and conflicts

The institutional context of herder-farmer conflicts, in particular those directly related to land tenure systems, features prominently in studies of natural resource management and land tenure systems in Africa .Juul and Lund (2002) report that most of the studies focus on agricultural societies, in part because the land tenure systems of pastoral societies are generally not as well defined, unless it concerns access to watering points. Pastoralists generally do not own the land and only have unclear rights over landed resources such as grasses, trees and water. In practice, however, pastoralists' unclear rights over land and landed resources only seem secure as long as there are no agricultural claims. Pastoral rights are generally trumped up on or use overshadowed by agricultural rights, which is a reflection of contemporary power balance between farmers and herders in national laws, policies and governments.

Recent literature has focused on the increasingly complex and ambiguous institutional context of land tenure and emphasized the negotiation process over access and control of land (Juul and Lund 2002). Even though scholars, like Mehta *et al.* (1999), cover power differences in their discussion of institutions and uncertainty in natural resource management, there is the tendency to focus on the 'negotiations' and the ambiguity in rules, rather than on the outcomes (Peters 2002; Peters 2004). There are, for example, few explicit references to the exploitative side of negotiation, contestation, mediation, and bargaining in the recent literature on land rights in Africa (Benjaminsen and Lund 2001; Juul and Lund 2002). However, a number of scholars have pointed out that there is a pattern to the outcomes of these 'negotiations' over ambiguous, overlapping rights over land and landed resources; wealthy, powerful and better-connected elite almost always win (Peters 2002; Peters 2004). As Peters (2002; Peters 2004) argues that "the positive aspects

of ambiguity and indeterminacy in Africa's 'land question' may be over-emphasized to the point of ignoring or deflecting research and policy away from growing inequity in access to and use of land"(Peters 2002). She adds, "some people have more power to interpret, define, and claim rights" (Peters, 2002).

Resource scarcity is exacerbated by recurrent droughts. In addition to resource scarcity, weak and inappropriate formal institutions in pastoral areas coupled with the inability of traditional institutions to manage conflicts and secure property rights have contributed to the intensification of violent conflicts and animosity among pastoral groups (Bekele, 2002).

2.5 Increasing human population and resource use conflicts

Continuing human population pressures has lead to decreasing farm sizes and farming system disintegration. Disappearance of the resource base leads to disruption of the environmental balance often which results in human conflicts (Steinfeld, *et al.*, 1996). In support of the above view Oversees Development Institute (ODI) (1997) contends that human population has had dramatic effects on natural resources. More farmers and pastoralists are trying to make use of the same land area, the increasing demands of cites for meat and cereal induce many producers to keep larger herds as they respond to these demand. On the other hand, Global Forum for Policy (GFP) (2003) observed that the increasing scarcity of resources, driven by world population and the spread of unsustainable consumption, further sharpens such conflicts. With a steady increase in population, the squeezing of pastoralists onto a reduced land area has pushed them to either graze on the crop fields, hence conflicts with agriculturalists, or look for pasture elsewhere, hence conflicts with their neighbours. The few areas that can support dry season grazing

are in the gazetted land. The gazettement of several forest and wildlife areas in the 1940s and 1950s by the colonial government largely reduced the area of movement for human beings and their livestock given that they were now made mostly inaccessible, (ECAPAPA, 2005). "Pastoralists have interacted with sedentary farmers for millennia, with established practices of trade and symbiotic production such as grazing of livestock on farmers' fields before planting seasons. However, both population growth and increasing commodity production have led to the expansion of agriculture on formerly shared grazing lands, and have increased tension and conflicts between these groups in many parts of the world" (Fratkin 1997).

2.5.1 Herd size and effects on resource use conflicts

Huge herds of cattle are an important source of wealth, however they are increasingly becoming a problem to government planners and politicians (International Regional Information Network (IRIN), 2006) Statistics provided by the regional secretariat indicated that in Hanang, the number of cattle had outstripped the land's carrying capacity by 6.2 percent, while in Mbulu the figure was up by 5.8 percent. In Babati rural district, the number of cattle was above carrying capacity by 3.4 percent, in Kiteto the figure was higher by 1.3 percent and in Simanjiro the cattle number exceeded the carrying capacity by 0.95 percent (IRIN, 2006). Places with a high cattle population recorded the highest cases of conflict between pastoralists and farmers due to limited dry season grazing resources (Gefu, 2003). Nevertheless, Odhiambo (2006) argued that livestock define the lives of pastoralists. They are the means of fulfilling and satisfying nutritional, social and cultural needs of the family. Those who criticize pastoralists for keeping large numbers of livestock, rarely pause to consider that they need to insure against the hazards of the dry lands if their families are not to starve. The low level and highly seasonal supply of milk

from cows, due to low calving rates and the great variation in fodder supply during the year, requires large number of animals to maintain families that depend almost entirely on milk products throughout the year.

2.5.2 Obstruction of livestock routes

Conflicts have flared whenever the pastoralists try to access the river to water their livestock for virtually all the riverbanks have been occupied by the farmers. This subsistence land use by the farmers has left no space for the pastoralists to access the water and this has been the main and leading cause of conflict, especially during the dry period when all the pastoralists have moved with their livestock to the Tana delta (Amadoi, 2005). Amodoi (2005) further argues that whereas the farmers claim the land the pastoralists claim unfettered access to the water. These conflicts are therefore predictable and preventable if adequate conflicts resolution mechanisms are put in place. This scenario perhaps provides an express manifestation and understanding of conflict over natural resource (water).

2.6 Ethnicity, migration and resource use conflicts

Bujra (2001) observed that in rural areas of many countries, many conflicts are fight based on ethnic lines, mainly over grazing land and over cattle amongst pastoral people. Similarly, there are conflicts over cultivable land amongst peasant farmers within the same ethnic group and between ethnic groups. However, Peter (2004) observed that Africa has been hit by ethnic differences, so that wherever civil wars flare up they would invariably be fought along ethnic lines. But ethnic differences do not 'cause' the conflict. He argues that globally, ethnically diverse societies are not at risk of civil war than other societies. The only exception to this pattern is where the largest ethnic group is in a majority

Semi-arid regions, because of their patchy resources, also usually have dispersed human populations. Either these move in search of resources that vary annually, such as fish or pasture, or they adapt their cultivation to varying conditions of soil fertility and rainfall. Either way, flexibility is a key element in their subsistence, often at the expense of community coherence (Bujra, 2001).

2.7 Governance and resource use conflicts

Governance has a wide variety of meanings, ranging from a narrow concern with the manner in which the state manages public goods and services through an accountable, transparent and legitimate use of state power. Other definitions emphasize the importance of participation in decision-making processes as an integral aspect of governance. (Rahman and Robinson 2006).Some of the underlying or triggering causes of conflict are illegitimate or weak institutions, corruption, insufficient respect for human rights, lack of good governance, and the perception that the administrative and political channels are not adequate or that they are inaccessible O rganization for Economic Cooperation and Development(OECD), 2005). The East Africa Community (EAC) for example takes a holistic view of the quest for regional peace by addressing the root causes of conflicts notably rivalry for resources and power struggles. It therefore seeks to establish systems of good governance that guarantees equal opportunity and participation to all in the allocation and management of political and economic resources (Mwapachu, 2007). Bad governance is manifested in corruption, lack of accountability and disregard of the rule of law and human rights (Kapinga, 2003).

2.7.1 Participation on land matters

Government often pronounced and implemented changes without the consultation and due regard to the stakeholders such as local communities can easily ferment conflicts (Kajembe *et al.*, 2004). Resource use conflicts occur because pastoralists' communities are physically remote and often politically remote as well and that political forces are biased towards the urban and more affluent agricultural population (Ahmed and Tarig, 1998). Conflicts can arise if user groups are excluded from participating in natural resource management. (Matiru, 2000) A considerable number of land problems and disputes can directly be traced to the non–participation of villages in the administration of villages lands (URT, 2004). But Mungo'ong'o (2003) argued land use conflicts between the pastoralists and crop cultivators should be averted by adoption of participatory land use and other natural resource use planning in the conflict prone areas and this should be preceded by creating awareness on the importance of participatory planning in conflict resolution at both local and district levels.

2.7.2 Transparency on handling land issues

The Presidential Commission of inquiry into Land Matters report November, 1992 points out two issues out of the five identified areas of concern which includes: (1) Lack of transparency and popular participation in the administration of land; and (2) poor institutional structure for adjudication of land rights and disputes (URT, 2004).

2.7.3 Corruption and resource use conflicts

Corruption and loss of transparency is a long-standing problem, which is generally acknowledged at all levels of the government. These practices severely constrain the function of the government organs. A study done by Kajembe, *et al.* (2004) revealed that

the practice of different government agents at village, ward and district levels at the time of clashes in Kilosa, point a finger to corruption tendencies. Currently, there are cases of large scale expropriation of pastoral lands by corrupt officials, marginalization of pastoralists and in some areas there have been some forced evictions (Igole and Brockington, 1999).

2.7.4 Land degradation and conflicts

Land degradation is caused by complex set of factors man and his stock, crop encroachment in marginal areas and fuel wood collection. Land tenure, settlement and incentive policies have undermined land use practices and contributed to degradation through over grazing (Blackburn *et al.*, 1995). In general, more detailed empirical studies of the ecological contexts of herder farmer conflicts are necessary to examine the role of environmental scarcity and evaluate the claim that competition over scarce resources is at the base of herder-farmer conflicts or the counter-claim that many conflicts might not be about damages to fields or blocking of cattle tracks but about other concerns (Turner 2004, Vayda and Walters (1999) have argued that it is important to document environmental changes, and not to assume them a priori.

2.7.4.1 Land use type and conflicts

Poor land use may result into degradation which also lead to climatic change and desertification (Goria, 1999). Increasing agricultural practices in the lowland areas are likely to have reduced the size of the grazing areas for the pastoralists. The implication of this change is that pastoralists can no longer subsist on pastoralism due to pasture scarcity, and competition for land and water. This is reported to have been the case on the lower slopes of Mount Kenya where such areas have experienced very rapid population growth, basically due to in-migration from highland areas (Gichuki *et al.*, 1998). The expansion of

agriculture into marginal land is also reported in other areas like the lower slopes of Mt. Kenya the Lower Kondoa Irangi plains (Mungo'ong'o 1995), and the Mbuga plains in Kwimba District (Madulu, 1998) For this particular case, people from high rainfall areas have introduced land use practices that are not suitable for the dry areas of their new settlement. The area has undergone a dramatic change in land use such as conversion of grazing land, natural forest and bush lands into small-scale farming areas. This has resulted into increased demand on natural resources as forest resources, agricultural land and pastures, among others, and thus led to resources use conflicts (Gichuki *et al.,* 1998).

2.7.4.2 Land clearing for farming and rural conflicts

Competition over land features prominently in the study of herder-farmer conflicts as Africa has allegedly gone from an abundance to scarcity of land in one century (Berry 2002). (Homewood and Rogers, 1991). Colonisation of pasture lands by sedentary agriculturalists such as the Ilarusa (Waarusha), the Wairaqw, the Wachagga and international seed breeding companies, like the Rotian Seed Farms of Naberera has been another major factor in the decrease of pastoralists' grazing lands National (Environmental Management Council (NEMC), 1993). Conflicts, per se, are not bad; rather, they are viewed as necessary if societies are to evolve and develop. However, when conflict is poorly managed, it can lead to degradation of the environment and violent confrontations (Moore, 2005).

2.8 Methods for conflict analysis

2.8.1 Focus group discussion

Focus group discussions normally generate a large body of knowledge about the community (Mikkelsen, 1995), and are cheaper and quicker to conduct than individual

interviews (Katani, 1999). The Focus Group Discussions were seen to fill in gaps of missing information and help to clarify issues which arose in formal interviews. The type of information obtained trough Focus Group Discussion includes: people perception on land and water conflicts; locals' perception on nature and causes of resource use conflicts; participation of local communities on land issues; conflicts resolution mechanism.

2.8.2 Binary logistic regression

Binomial (or binary) logistic regression is a form of regression, which is used when the dependent variable is dichotomous and the independent variable are of any type. Logistic regression applies maximum likelihood estimation after transforming the dependent into a logit variable (the natural log of the odds of the dependent occurring or not). In this way, logistic regression estimates the probability of a certain event occurring (Rice, 1994). Logistic regression can be used to predict a dependent variable on the basis of continuous and/or categorical independents and to determine the percent of variance in the dependent variable explained by the independent variable; to rank the relative importance of independent variable; to assess interaction effects; and to understand the impact of covariate control variables (Hosmer and Lemeshow, 1989).

2.8.3 Cluster analysis

Cluster analysis is an exploratory data analysis tool which aims at sorting different objects into groups in a way that the degree of association between two objects is maximal if they belong to the same group and minimal otherwise. Cluster analysis simply discovers structures in data without explaining why they exist. This analytical method is mostly used when we do not have any a priori hypotheses, but are still in the exploratory phase of our research. In a sense, cluster analysis finds the "most significant solution possible."

Therefore, statistical significance testing is really not appropriate here, even in cases when p-levels are reported (Rice, 1994).

Clustering techniques have been applied to a wide variety of research problems. For example, in the field of medicine, clustering diseases cures for diseases, or symptoms of diseases can lead to very useful taxonomies. In the field of psychiatry, the correct diagnosis of clusters of symptoms such as paranoia, schizophrenia, etc. is essential for successful therapy. In archaeology, researchers have attempted to establish taxonomies of stone tools, funeral objects, etc. by applying cluster analytic techniques. In general, whenever one needs to classify a "mountain" of information into manageable meaningful piles, cluster analysis is of great utility.

2.9 Summary

This chapter presented a review of literature focused mainly on the linkages between resource use and conflicts and on how the Maasai pastoralists and other stakeholders particularly farmers have been involved in the use of these resources (i.e. land, water) so as to prevent the conflicts and attain sustainable peace and tranquillity. Issues of causes leading to resource-use conflicts between farmers and herders have also briefly been dealt with. Land issues have also been given due regards; these include: access rights, land rights, land use and land alienation. General socio-economic matters such as herd size, obstruction of stock routes and their linkage to conflicts have been reviewed. This chapter has also made an attempt to address some demographic factors such as: rise in human population, ethnicity and migration and their roles in resources use conflicts. Governance has also been re-examined in the chapter and attention given to three dimensions namely, transparency, corruption and participation and their linkage to conflict. Lastly the chapter

explored the relevance of methodological approach for conflict analysis such i.e. Focus Group Discussions (FGDs), binary logistic regression, and cluster analysis. The process of reviewing this section also identifies the knowledge gaps that this research sought to bridge.

CHAPTER THREE

METHODOLOGY

3.1 Description of the study area

Simanjiro is one of the districts, in Manyara region with an area of 18 851 square kilometres and is the largest district of the five districts in the region. Figure 2 shows the map of Simanjiro District and the study villages Marked by bold dots.

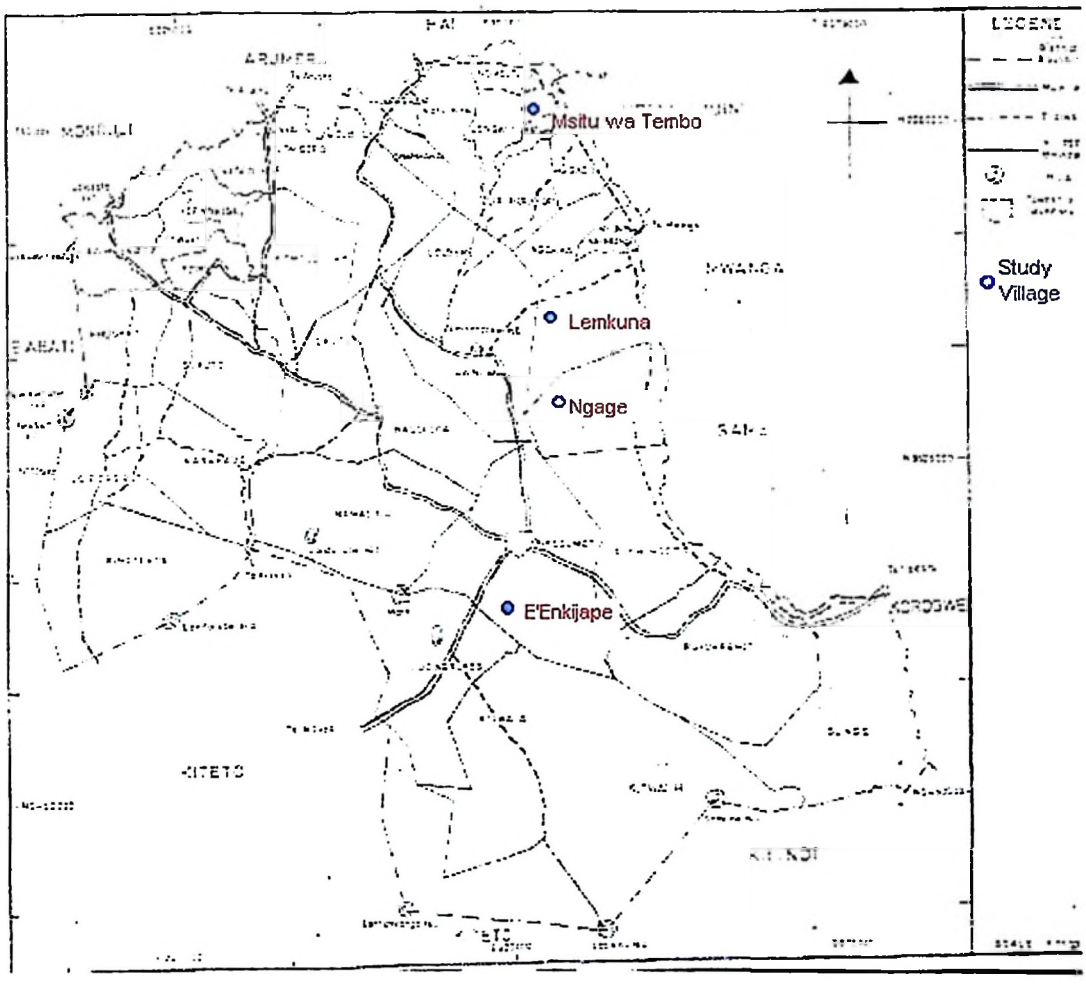

Figure 2: A map of Simanjiro District showing the study villages

The Simanjiro climatic condition is semi-arid and mainly the area is occupied by pastoralists with large herds of cattle. Crop production is insignificant. This District is characterized by a bimodal rainfall pattern and may be grouped as semi-arid. The District receives both long and short rains. The short rains fall between October to December and long rains from February to June. The average annual rainfall for Simanjiro is 487 mm per annum Rainfall distribution is highly irregular. Its vegetation is mostly bushlands. It is characterized by plains and scattered hills covered with bush and grassland, with gently rolling hills. Much of the vegetation however, is under pressure for firewood, grazing land and increasing farming activities.

According to the 2002 population census the District had a total 141 136 people of which 76 351 and 64 785 were female and male respectively with growth rate of 7 % per annum. The fast increase in population has been attributed to the large influx of immigrants, either looking for farms or taking part in mining activities. Simanjiro District has total land cover of 18 851 square kilometres, with six divisions, twelve wards and forty-eight administrative villages. The arable land in the District is 420 000 ha out of this only 30 000 ha are under cultivation. However irrigatable land is 3 950 ha however only 1 145 ha of irrigatable land has been exploited.

3.2 Research design

This study involved a cross-sectional research design. That is data were collected on a sample at one point in time.

3.3 Sampling design

3.3.1 Sampling frame

The sampling frame for this study was the village register obtained from the Village Executive Officer (VEO); the lists were used to randomly select the households for interview. The households were selected by random sampling procedure to avoid bias in selecting respondents.

3.3.2 A purposive sampling technique

A purposive sampling procedure was employed in this study to select study villages based on the prominence of resource use conflict such as land, water and wildlife, ethnic composition and multiple uses of land resources. The other criteria that were used to purposively select the villages were based on the livestock population and the extent of farming activities in the area. Interest of the researcher also contributed to the choice. Based on these criteria four villages, namely Msitu wa Tembo, Lemkuna, Ngage, and En'donyo Enkijape were chosen.

3.3.3 A Multistage sampling technique

A multistage sampling technique was employed to conduct this study. In the first stage three Divisions from Simanjiro District were selected. The second stage involved selection of four wards. The third stage entailed selection of four study villages which were purposively sampled. A single village was picked from the identified ward. Ultimately 30 households were randomly sampled from each village in order to obtain a sufficiently large sample size, for satisfactory statistical inferences. The unit of analysis for this study was the household. A total of 120 households were therefore interviewed. These were selected based on the population of the household in a particular sub-village within the study village

and the occupation of the household head. According to (Matata) 2001 cited by Hella (2003) reported that a sample of 80- 120 respondents is sufficient to carry most social survey in sub-Sahara Africa (SSA).

3.3.4 Data collection methods

Both primary and secondary data collection methods were used in this study. Primary data were acquired from selected villages and households through PRA approach mainly Focussed Group Discussion (FGDs). Household surveys were conducted using a personal structured interview schedule, with both closed and open ended questionnaires and informal discussions were held with local people. The researcher observation was also employed.

Secondary data were mainly collected through documentary materials (government reports, village records and different publication) acquired from libraries and District offices.

3.3.5 Formal interviews

A structured interview schedule was used to interview head of households (See Appendix 3). The type of data obtained through formal interview schedule included: general information on demographic factors such as migration, social economic activities like, land ownerships, institutional rights, livestock ownership, plot ownership, nature and causes of conflicts, and conflict mitigation measures. Governance issues such as transparency, corruption and participation, environmental issues such as soil fertility, and management of water catchments areas and land management techniques were recorded.

3.3.6 Informational interviews

Informal interviews were carried out with government officials, village government leaders, traditional leaders, and extension workers. These were considered as key informants. According to Metric (1993) key informants are people who are accessible, willing to talk and having great knowledge regarding the issues under discussion. At the District level, officials interviewed included District Extension Officer, District Land Officer, and leaders of LAMP one of the prominent Non-Governmental Organisations (NGOs) operating in the district.

At the ward level, officials interviewed included two Ward Executive Officers, and four Village Executive Officers and Religious leaders. The information sought through these interviews include: General land conflicts in the area; main land-use systems; nature and causes of resource use conflicts; and mechanism for resolving resource-use conflicts.

3.3.7 Focus group discussion

A focus group is a series of discussions intended to collect participants' perceptions, set in a" permissive, no threatening environment." (Krueger, 2000). Focus group discussions were conducted with a single group in only two study villages. It was very difficult to conduct the same in the other villages because members of the pastoralists were reluctant to take part due to commitment in catching up with the water timetable for their stock due to scarcity of water. Most key people that were anticipated to take part in the discussions had migrated to *ronjo* to in search of pasture for their stocks.

The groups included, men and women, from both farmers and pastoralists' communities. Each group comprised a minimum of eight and a maximum twelve members to enhance

harmony. Each group also included youth representatives of respective sex. The separation of gender was not adopted because most women from pastoralists' ethnic group were free to speak in the presence of men. The condition for selection of the group members was based on the willingness to participate in the discussions.

3.3.8 Participant observation

When carrying out participant observation the observer becomes part of the situation being studied (Kajembe and Weirsum, 1998). The method was used to achieve more understanding on the capacity of local pastoral institutions in resolving resource use conflicts. For example Kajembe (1994) emphasises that these methods allow tying together separate elements and information collected by other methods.

3.4 Data analysis

Both Descriptive and inferential statistics were used in data analysis in this study.

3.4.1 Descriptive statistics

Descriptive statistics such as mean, frequencies, cross tabulation, standard error, maximum values of the studied variables for example livestock number, years spent in school among other variables. A Statistical Package for Social Sciences (SPSS 11.5) were used to analyze the quantitative data.

3.4.2 Regression

A logistical regression was adopted to analyse the likelihood of occurrence of resource use conflicts. Occurrence of resource use conflicts was conceived as a dichotonomous dependent dummy variable with the responses "yes" for high conflict magnitude with

value 1, or "no" for none to low conflict magnitudes with value "0". The conflict magnitude in each study village was rated on conflicts scale with scores: violent clashes (6), animosity (5), disagreements (4), arguments (3), tensions (2), no conflicts (1).Score 4 was used as the cut off point for high magnitude of resource use conflicts.

The logistic model predicts the likelihood of occurrence of an event (Menard, 1995), which is predicted by odds (Y = 1). That is the ratio of the probability that Y = 1 to the probability that $Y \neq 1$.

This is given by equation:

$$OddYP(Y=1)/(1-P(Y=1) \quad \text{(1)}$$

The logit (*Y*) is given by the natural log of *Odds*; that is

$$\frac{InP(Y_i=1)}{1-(Y_i=1)} = \log Odds = \log it(Y) \quad \text{(2)}$$

where,

Y_i ..... i^{th} Observed value of resource use conflicts

$$\frac{InP\ (Y_i=1)}{1-p(Y_i=1)} = \beta o + \sum \beta_1 X_1 + \ldots\ldots + \sum \beta_k X_k \ldots\ldots \quad \text{(3)}$$

Where; Y_i = dependent variable, resource-use conflict

X_1 .... Z_k were the independent variables

X_1 = 1 if farmers over farm plot conflicts, 0 otherwise

X_2 = 1 if farmers over boundaries conflicts, 0 otherwise

X_3 = 1 if herders over grazing resources, 0 otherwise

X_4 = 1 if herders over water resources, 0 otherwise

X_5 = 1 if fair water allocation procedure, 0 otherwise

X_6 = 1 if farmers-herders over water-use, 0 otherwise

X_7 = 1 if farmers-herders over land-use, 0 otherwise

3.4.3 Cluster analysis

The cluster analysis (CA) was used in order to identify natural grouping predicting nature and causes of resource use conflicts. CA is based on some measures of similarity of multivariate observations (Hella, 2003) (e.g. $X_i and X_j$) where variable of similar characteristics are clustered together such that:

and $$X_i^T = (X_{il} \ldots\ldots\ldots X_{ij}) \quad \ldots\ldots (4)$$

$$X_j^T = (X_{jl} \ldots\ldots\ldots X_{jk}) \quad \ldots\ldots (5)$$

belong s to different clusters such that;

$$X_j^T \neq X_i^T$$

The CA used hierarchic algorithms to produce an array of distance between variables (Manlay, 1998 cited by Hella 2003). Individual variable were later classified into small group. Several small groups belong to a bigger group etc. until only a few (or only one group) remained. Euclidean distance (EUCLID) based on complete linkage (furthest neighbour) method was adopted as a coefficient of clustering. A representation of the clustering is given in the dendrogram. The horizontal scale at the top shows the distance at which the clusters combine. The further the distance, the higher the level at which they join and more equal they are (Van Wonterghem, 1998). The distance between i and j is given by:

$$d_{ij} = [(X_{ij} - X_{ij})^2 + \ldots\ldots\ldots\ldots + (X_{ik} - X_{ik})^2]^{1/2} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (6)$$

Where d_{ij} is the geometrical interpretation of distance from alternative

i to alternative j;

X_{ik} is the value of variable X_k for alternative i and

X_{jk} is the value of the same variable for alternative j

According to (Esbensen *et al.*, 1997 cited by Hella 2003), the advantage of CA is that there is no need to define the specific group observation at the beginning of the analysis hence the results generated are less likely to be subjected to bias.

3.4.4 Limitation of the study method

The following are limitations, which were experienced during data collection stage of this study.

i) Most herders did not like to reveal the numbers of cattle they owned for reasons known best to themselves. Lack of statistical data on livestock numbers migrating to a particular village in the dry season, either from the neighbouring or far away villages was also missing. This was occasioned by lack of official records indicating numbers of livestock kept per village. The pastoralists tend to over estimate the numbers of their livestock to attract attention for more services e.g., widening of the cattle routes, provision of water points, veterinary services among others.

ii) There was also the tendency towards exaggeration of the problems and over estimation of losses in livestock, crops and agricultural land. Therefore the livestock numbers and plot sizes indicated in this study are near approximation of reality. However the Village Executive Officer (VEO) in; Msitu wa Tembo, Lemkuna and Ngage villages helped to overcome these hurdles. Instead in Endonyo Enkijape, the assistance of village chairman was very helpful. Through the assistance of these leaders it was possible to make more reasonable estimates for purpose of comparison.

iii) Language barrier problem was encountered when undertaking this study. Majority of the Maasai household heads respondents could not speak Swahili.

Nevertheless the setback was overcome through village chairmen who helped in the translation while the respondent was being interviewed from Swahili to Kimaasai and vice versa. Wherever the village leadership was tied up with other duties they provided a person to assist the researcher.

iv) The study was conducted during the dry season. Therefore most pastoralists were either in a hurry to catch up with the water timetable for their livestock or escorting them to grazing areas. This aspect delayed the interview schedules that were supposed to be held with Maasai pastoralists' household heads. Interestingly, the Maasai respondents preferred to be interviewed in a group. To overcome the hurdle the researcher with the help of the village leadership made good rapport with the Maasai and convinced them to understand the essence of gathering information from a single household head. It was alleged that government officials and NGOs come to the area, hold meetings with villagers, take notes and go away. The expected benefits to the communities, as claimed, have not been seen. This made some people reluctant to cooperate with the researcher.

In spite of these constraints, which were familiar and expected in such situations, the people met were generally very co-operative, based on their hopes and expectations from the outcome of the study. Therefore, the data obtained were sufficient to enable making inferences useful for the study results.

3.5 Summary

This Chapter has presented an overview of the methodologies that were used to sample the respondents, to collect secondary and basic data. Due to the nature and complexity of both the characteristics of the respondents and the interrelationships among components investigated, several stages of sampling methods of data collection methods were used and finally different tools of data analysis were employed. A random sample of 120 households collected from four purposely sampled villages-namely Msitu wa Tembo, Lemkuna, Ngage and Endonyo Enkijape in Simanjiro district. These formed the main source of primary data. A structured questionnaire was the principal instrument for data collection while the logistic regression method was used for confirmation of nature and causes of resource-use conflicts.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 General characteristics of the respondents in the study area

4.1.1 Number of cattle owned

Table 1 below shows the livestock ownership in two subsequent seasons. The numbers in parenthesis indicate the livestock numbers owned in the previous season before this research was undertaken and the numbers not enclosed in the brackets represent livestock numbers owned in the current season when the study was undertaken. Generally the numbers of livestock ownership seem to decrease over time in all the four study villages as shown in Table 1.

Table 1: A statistical summary presentation of the number of livestock ownership in the study area

Village	Min	Max	Mean	Total	S.E.M	%	B.A
Number of cattle owned							
Msitu wa Tembo(n=14)	5(4)	70(80)	23(26)	322(369)	±6(±6)	14.5(8.7)	90.0
Lemkuna (n=12)	2(5)	70(300)	28(90)	367(1085)	±6(±27)	16.5(25.6)	83.3
Ngage (n=15)	2(5)	200(300)	47(96)	709(1441)	±14(±22)	32.0(34.1)	83.3
Endonyo Enkijape (n=12)	10(10)	230(500)	68(111)	820(1337)	±25(±47)	37.0(31.6)	90.0
Overall (n=53)	2(4)	230(500)	41(80)	2 218(4232)	±7(±14)	100.0(100.0)	86.7
Number of goats owned							
Msitu wa Tembo (n=14)	6(4)	50(100)	18(41)	254(448)	±4(±11)	8.2(7.6)	
Lemkuna (n=12)	6(4)	170(300)	40(92)	364(921)	±17(±30)	11.7(15.5)	
Ngage (n=15)	6(4)	700(950)	97(152)	1 548(2,431)	±42(±55)	49.9(41.0)	
Endonyo Enkijape (n=12)	6(6)	200(827)	72(152)	936(2;133)	±16(±55)	30.2(36.0)	
Overall (n=53)	6(4)	700(950)	60(116)	3 102(5,933)	±14(±24)	100.0(100.0)	

- Numbers in brackets are numbers of livestock owned in the previous season.
- B.A-Below average, A.A- Above average, S.E.M- Stand error of mean

(i) **Msitu wa Tembo**

Msitu wa Tembo is located next to Moshi Rural and Moshi Urban Districts. According to the 2002 housing and population census the village had 4 700 people with 2 447 males and 2 253 females. The cattle population in the village is low due to the presence of more farming plots and insufficient pastures. The main economic activity is pastoralism. Few members of the Maasai ethnic group own farming plots in this village.

The determination of the number of livestock owned in a particular village was imperative in this study. These numbers were used in order to predict the role played by ownership of large or small herds of cattle or flocks of sheep and goats in fuelling conflicts. The findings on the number of livestock ownership shows that, Msitu wa Tembo village contributed 4.5 % and 8.2% of the total cattle and goats owned respectively in all the study villages, against 8.7 % and 7.6 % of the overall numbers of cattle and goats respectively owned in both current and previous seasons, which reveals a significant decrease in numbers of livestock owned. The difference in livestock numbers was mainly caused by a prolonged drought that caused large numbers of livestock mortalities. Nevertheless the survey also showed that; a person on average owned 23 ± 6 (S.E) cattle compared to (26 ± 6) (S.E) cattle in the previous season. The average number of goats owned per household was 41 ±11 (S.E) in the previous season against (18± 4) (S.E) in the current season. But the minimum number of cattle owned per household was (4) in the previous and 5 in the current seasons; with minimum number of (4) goats and 6 in the previous and current seasons respectively. The minimum number of cattle owned is 70 with maximum of (80) cattle per household in the previous season, while that of

the goats was 50 the current and (100) in the previous season. However, the survey showed that 90.0 % of the respondents own livestock below average, with only 10.0% of the household livestock ownership standing above average.

(ii) Lemkuna

Lemkuna is located adjacent to the Pare District of Mwanga and they are separated by the Pangani River commonly known among the Maasai community as *Moipo*. The village has a well developed irrigation system. The major crop which is grown in the area is rice. The village has the least human population according to the 2002 housing and population census which was 1 508 with 808 males and 707 females.

The survey revealed that the numbers of cattle owned last season were on average larger than the current season. The same case applies for other statistical data presented in Table1, for example, the maximum number in the previous season stood at 300 herds of cattle against 70 in the current season with averages for the two seasons per household also showing a steady decrease in numbers from 26 to 23 cattle. If, compared to last season when the village contribution to the total cattle ownership in the study area was 25.6% currently the figure stands at 16.5% showing significantly a downfall of 35.6%. A significantly proportion of 83.3% of the respondents showed to be below average with only 16.7% showing to own 28 cattle and above.

In regard to the goats, the minimum number went up to 6 goats per person relative to 4 owned per person in the previous season. But the maximum number owned per person fell drastically from 300 to 170 goats. The same trend reveals that on

average a person owns 40 goats relative to 92 in the previous season. Generally the overall village contributions to total flocks of goats in the study area showed a slight increase from 7.6% previous season to 8.2% the current season.

(iii) Ngage

Ngage village boarders the Pare district of Same, and is also located, along Pangani River. The population is relatively high compared to Lemkuna. The social services, such as school, health centres, and safe water for domestic use are well developed. The major crop grown in the village is onion. However, quite a good number of the Maasai people have shown keen interest in agriculture. The population according to the 2002 population and housing census is 2 681out of which 1 494 were males and 1 187 were females.

The minimum number of cattle ownership per household increased from 2 to 5, while the maximum number fell from 300 to 200. The same trend was depicted on average herd size per household, which had shown a reduction from 96 cattle in the previous season to 47 cattle in the current season. However, the village contribution to herd size had increased from 32.0% to 34.1% showing an increase of 6.6%. However as it was portrayed in Lemkuna 83.3% of the respondents were below average and only 16.7% kept cattle above average.

The flock size regarding the goats, the survey revealed the same trend. However the maximum numbers of flock show a reduction from 950 to 700 per household a decrease of 26.3%. The same trend is manifest in regard to average flock size

ownership per household. Importantly, the statistics also showed that, the village contribution to the total number of goats kept is highest at 49.9% in the study area.

(iv) **Endonyo En'kijape**

The village is located next to the district headquarters Orkesumet. Most inhabitants are the Maasai with a significant number of immigrants' non-pastoralists farmers. The total population of the village is 5 231, with 2 631 males and 2 253 females. The village has the largest herd of cattle compared to all other three study villages. The major problem in the village is water for both livestock and domestic uses.

The study showed that, the minimum number of cattle ownership in the village per household remained the same in the two subsequent seasons. However, the maximum number of cattle ownership, has reduced significantly from 500 to 230 cattle per household showing a reduction of 54.0%. The average number of cattle owned in the previous season per household fell from 111 to 68 cattle which represents, a reduction of herd size by 46.0%. The total numbers of cattle in the subsequent seasons have reduced from 37.0% to 31.6% showing a decrease of 14.6%. The survey also revealed that 90.0% of the household owned a herd size below average and 10.0% of the households livestock owned above average.

The survey showed that, there was no change on the minimum number of goats owned per household from one season to another. But, the maximum number of goats' ownership per household had shown a reduction from 827 to 200 goats in the subsequent season. This fall, represented almost three quarter reduction in the flock

size, which is highly significant. The overall contribution to the total population of goats in the study area fell from 36.0% to 30.2% showing a decrease of 13.3%.

The study revealed that, while the minimum herd size is decreasing, the flock size is increasing in the study area as demonstrated in Table 1. But both maximum numbers including the averages values for goats and cattle in the households were increasing. The average number of cattle ownership per household in the study area is 41 ± 7(S.E) cattle the previous season and (80 ± 14) (S.E) cattle the current season. The same trends were depicted with shorts. In the previous seasons on average there were (116 ± 24) (S.E) goats while in the present season the average were 60 ± 14(S.E) goats per household. However, the overall trends showed that 86.7% of the households fell below average in regard to the herd size ownership, while only 13.3% of the household were above average.

The reductions in herd size were attributed to two main reasons. First was the severe drought experienced between 2005/2007 that saw many cattle die of hunger due to lack of pasture and water. While the cattle were too emaciated to an extend that they could no longer fetch reasonable prices in the market the pastoralists on the wake of the calamity sold goats in large flocks. Their prices remained steady through out the crisis. The continuous selling of goats as coping strategy against the drought was reported to have significantly reduced flock size across the villages. The other reason was animal diseases such as East Coast Fever (ECF) and Malignant Catarrh Fever (MCF). The reduction in the herd size also shows a positive change of attitudes of pastoralist towards farming. This attitude of the Maasai pastoralist towards agriculture is likely to give an upper hand to the reduction of resource use conflicts between them with farmers. One of the Maasai reported

that: The change in livelihoods strategy from pastoralism to agro-pastoralism had also a strong influence on the decline of these numbers

> *"We appreciate the effort made by farmers in making and cleaning water irrigation canal because we are still new in farming and we have learned a lot from immigrants farmers; they brought development"*

4.1.2 Land ownership by ethnicity

Land ownership was fairly distributed among the different ethnic group as shown in Table 2. Generally, 107 (89.2%) of the households owed a piece of land whereas 13(10.8%) of them did not own a piece of land, but from this, households from the Maasai ethnic group formed large proportion. These could be attributed to the fact that, most Maasai are pastoralists, and they keep on moving with their cattle from one place to another in search of water and pasture.

Table 2: Land ownership based on ethnic background

	Ethnic background						
	Maasai (n=58)	Pare (n=20)	Chagga (n=7)	Muarusha (n=7)	Sambaa (n=7)	Others (n=21)	Total (n=120)
Yes	51(47.7)	19(17.8)	5(4.7)	5(4.7)	7(5.8)	20(18.7)	107(89.2)
No	7(5.8)	1(1.7)	2(1.7)	2(1.7)	NA	1(0.8)	13(10.8)

This frequent movement in search of pasture renders the group inefficient as far as management of land for crop production is concerned. All members of the Sambaa community interviewed reported to own some land. The Waarusha some were either livestock keepers or engaged in retail business. The Pare and Chagga were either involved in business, hired pieces of land or worked in the District as civil servants. While trends

showed that, other ethnic groups were purely in the district to practice agriculture, as 95.0% of them owned farming plots.

4.1.3 Number of farming plots owned

The study also revealed that 57.7% of the households owned a single faming plot, while a quarter of the households owned two farming plots and only 17.3% of the households had three farming plots as demonstrated in Table 3. The details for individual villages are represented in Table 4.

Table 3: Distribution of respondents on the numbers of plots owned

Number of plots.	Frequency (%)(n=120)
1	57.4
2	25.6
3	17.0
Total	**100.0**

The minimum number of farming plots owned across the four study villages is zero (0). These imply that some people are completely landless. But the maximum and mean holdings differ from one study village to another. The minimum holding for the first plot (1) is smallest in Lemkuna 4 ha with a mean score index of 1.82 ± 0.18 (S.E) ha. and the largest holding for the first holding (1) was 100 ha. in Endonyo Enkijape, with 14.8 ± 3.6ha. This was followed by Ngage with maximum size of plot standing at 15 ha. with a mean index of 3.1 ±.6(S.E) while in Msitu wa Tembo the maximum size for the same 11 ha. with mean index of 1.35 ± 0.41(S.E) ha.

The ownership of small plot sizes in Ngage and Lemkuna is influenced largely by households' ability to manage it for example under irrigation where farmers owned small pieces of farming land which requires intensive farming. Farmers reported that they are

interested to own what they could afford to manage. It was also reported that land size in the village was evenly distributed because the village location is a creation of Ujamaa Village. In 1976 every village member was allocated 6 ha. a system that, subsequent village leadership adopted later for a long period of time. This well laid down procedure together with a well established irrigation infrastructure contributed much to the low conflict levels reported. This implies that land ownership in the area is difficult. Even those owning more than one plot, they have either inherited or bought these plots.

In both Msitu wa Tembo and Endonyo Enkijape villages agriculture is rain fed and extensive farming is practised The minimum and maximum size for plot two (2) likewise differed from one village to another with the largest plot size ownership is found in Endonyo Enkijape with 400 ha with average of 19.3 ± 13.4 (S.E) ha. The smallest plot size ownership in hectares was reported in Lemkuna with a maximum of 4.0 ha with average of 4.0 ± 0.39(S.E) ha. In Ngage the maximum plot size was 5.0 with a mean value of 0.6± 0.1(S.E) ha. While at Msitu wa Tembo the maximum plot size was 8 ha with a mean value of 1.35 ±0.17 (S.E) ha.

Table 4: Statistical summary on number of plots owned by respondents in the study area

	Number of plots owned				
Summary	Msitu wa Tembo (n=30)	Lemkuna (n=30)	Ngage (n=30)	Endonyo (n=30)	Overall (n=120)
Min	0(0){0}	0(0){0}	0(0){0}	0(0){0}	0(0){0}
Max	11(8){3}	4.0(4.0){3}	15(5.0){1.0}	100(400){2}	100(400){3.0}
Mean	2.97(1.35){0.17}	1.82(1.13){0.39}	3.1(0.6){0.1}	14.8(19.3){0.1}	5.7(5.6){0.2}
Std.E.M (±)	0.41(0.42){0.12}	0.18(0.22{0.14}	0.6(0.2){0.1}	3.6(13.4){0.1}	5.1(3.4){0.1}

- Numbers in outside the brackets represent the summary for plot 1
- Numbers inside (x) bracket represents are summary for plot 2
- Numbers inside {y} bracket represents are summary for plot 3

The maximum sizes for the third farming plot holding (3) were reported in Msitu wa Tembo and Lemkuna with maximum plot size ownership reported to be 3 ha, but with slightly differing averages and mean standard errors. The later mean score value is 1.35 ± 0.12 (S.E) ha and the former mean score value is 0.39± 0.14 (S.E) ha. However, in Ngage maximum plot size ownership was 1.0 hectares with a mean value of score of 0.1 ± 0.1 (S.E) ha. Finally the maximum land size in Endonyo Enkijape was 2 ha with an average value score of 0.1± 0.1 (S.E) ha.

Generally, the overall minimum plot size ownership in the study area was zero (0) ha implying that some households have no access to land or are landless. While the overall maximums for plot ownership for plot number one (1), two (2), and three (3) in the study area were 100, 400, and 3.0 hectares respectively. However their means differed from one plot number to another. The overall mean size in hectares for plot number one is 5.7± 5.1(S.E), (5.6± 3.4) (S.E) for plot number two and {0.2 ± 0.1} (S.E) ha for plot number three. The results showed that the average plot ownership is less than 10 ha per household in the study area, with few people owning large pieces of farming plots. Vast area of land is mainly used for livestock grazing.

4.1.4 Distance to farming plot

Respondents were asked to mention the distance between their plot and the homestead. The purpose of asking this question was to find out whether there was a relationship between plot location and resource use conflicts. The statistics for distance from the homestead to the plot are represented in Table 5. The findings showed that, distances to plots ranges between zero (0) to thirty kilometres away from the homestead. The value zero implies

that, the plot is located within the homestead. Plot One (1) location showed a maximum distance of 30 kilometres with a mean score index of 3.07±0.3631 (S.E) kilometers.

Table 5: A statistical summary of respondents plot distance in kilometres

Plot distance in kilometers	Minimum	Maximum	Mean	Std Error of Mean
Plot 1	0.00	30.0	3.0723	±0.3631
Plot 2	0.00	7.0	1.4667	±0.1833
Plot 3	0.00	5.0		±0.1141

- plot 1 refer to first farming plot owned by a household
- Plot 2 refer to second farming plot owned by a household
- Plot 3 refer to third farming plot owned by a household

This distance was reported at Endonyo Enkijape where grazing areas were separated from crop farms to avoid conflicts between farmers and herders. Plot two (2) minimum distance was zero with a maximum distance of 7.0 kilometres with an average of 1.4667 ± 0.1833 (S.E). The distance, for plot three (3) the minimum was zero (0), maximum distance 5.0 kilometers, with a mean score of 0.4667 ± 0.1141 (S.E) kilometers. Distance also implies that there is more man hours lost per day while moving to the farms.

The researcher also made an attempt to enquire from the respondents the reason why their plots were located far way from the homesteads. They reported that they owned plots away from the homestead, located in designated areas purposely for farming and away from grazing land to avoid conflicts with herders. Location to farming plots was also attributed to inheritance. Plots were acquired from parents' initial settlement areas. However, in Msitu wa Tembo the distance to the plot was uniform with respondents reporting that they were forced away from the riverside by floods and the government requested them to settle in areas where floods were not prone to avoid disasters. The other reasons mentioned were to avoid crop damage from livestock and wild animals. The Maasai particularly associated the higher possibility of crop damage to the proximity of the plots to homesteads, while

farmers linked the scattered nature of farms to susceptibility nature of crop damage by wild pigs and other wild animals.

Another reason for long distances to farming plots was that their plots near home were forcefully grabbed by the Maasai. When further inquiries were made from the key informants particularly the Maasai elders, it was made clear that, they were tired of falling victims of oppression and tribalism directed towards them by immigrants including owning land at their expense. There was also a feeling among farmers and pastoralists that, what mattered most was not distance to the plot, but water availability. That is why most of the houscholds, preferred to owning a plot away from the homestead, provided that, there was water availability for irrigation. This suggests that, the likelihood for scramble for plots in future in these prime areas between farmers and herders would be on the increase.

4.1.5 Distribution of ethnic groups in the study area

The survey was carried out in four villages as shown in Figure 3. Generally 47.0 % of the respondents were the Maasai and 53.0% were non-Maasai. The results showed that with an exception of Msitu wa Tembo where only 40.0% of the respondents were the Maasai speaking group, in all the other three study villages at least half (50.0%) of the respondents were the Maasai. During the survey it was also noted that most of the non-Maasai speaking communities were retired migrants from the Tanganyika Planting Company (TPC) located in lower Moshi.

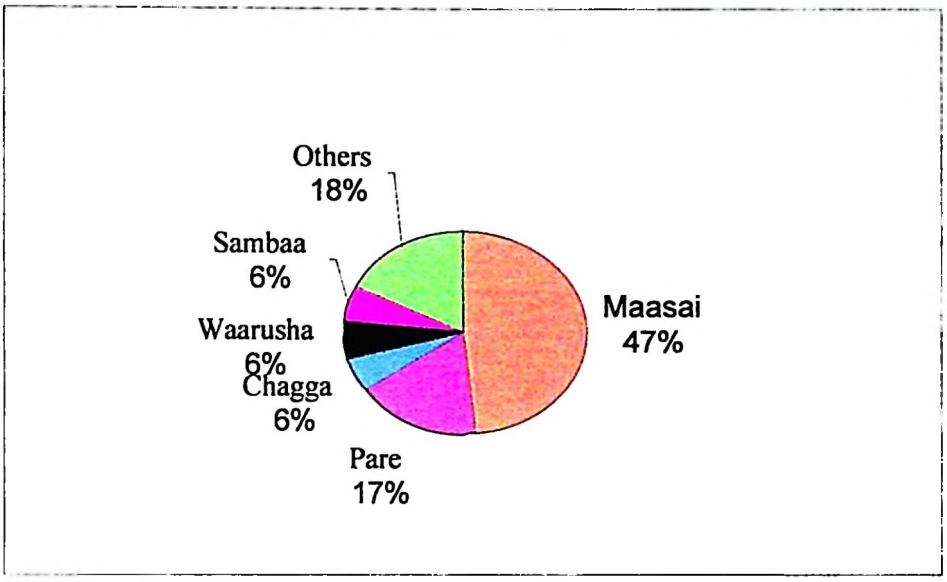

Figure 3: Distribution of ethnic groups in the study area

Their rate of immigration was reported to be relatively higher in Msitu wa Tembo, than elsewhere to an extent that, it provoked the native Maasai to migrate to as far as *Olchoro Onyori* a village located over 20 kilometres away from Msitu wa Tembo to apparently avoid unnecessary disputes with the immigrants from the factory. While talking to key informants, it was reported that, due to higher migration rates, the land was no longer adequate to provide pasture for cattle. In addition, farms have been expanded in the area, leaving little grazingland, a situation that has kept out cattle from the flood plain, thought to contain enough grass during the dry season.

The high rates of in-migration by different ethnic groups have created large demand for land; a situation that has triggered corrupt village leadership in the past to sell every portion of land available, including livestock routes leading to water points. The proportion of the Chagga community at Msitu wa Tembo was slightly higher than other ethnic group due to the fact that the village is located next to the two Chagga dominated districts of Hai

and Moshi Rural. Lemkuna and Ngage were highly productive due to availability of fertile land with plenty of water for irrigation. The presence of the Chagga community was not a noticed. Key informants said that the Chagga and Pare were business rivals, so that it would be difficult for the two ethnic groups to stay together and avoid competition.

The common non-Maa speaking communities in Msitu wa Tembo were the Pare while Sambaa were found in other villages. However, the Waarusha were predominant across all study villages. The implication for their ubiquitous nature was due to their ability to speak more or else the same dialect as the Maasai and they also keep cattle, an attribute that, has enable them to mingle with the native Maasai in addition to being good farmers as shown in Table 2. This feature as well, enabled them to cope with farmers from other ethnic groups. The proportion of the other ethnic groups a part from the ones specified is insignificant based on information sought from the key informants, who said that, these were not a threat to the native Maasai. However, their presence enhances ethnic diversity, minimizing the likelihood of occurrence of resource use conflicts.

4.1.6 Means of land acquisition

Table 6 shows methods of land acquisition by respondents in the study area. The major methods used to acquire land in the study villages include village offer which was mentioned by 44.7% of the households and also both inheritance and buying as reported by 20.2% of the households in each case. Original residents of a particular village have customary rights to land as a resource in their locality, while village leaders allocated new immigrants and others bought or rented from those already owning plots.

Table 6: Distribution of respondents by means of land acquisition in the study area

	Number of respondents by village				
Means of acquisition	Msitu wa Tembo (n=30)	Lemkuna (n=30)	Ngage (n=30)	Endonyo Enkijape (n=30)	Total (n=120)
Inheritance	11(36.7)	8(26.7)	4(3.5)	NA	23(20.2)
Bought	9(27.0)	7(23.3)	5(16.7)	2(6.7)	23(20.2)
Rented	1(3.3)	NA	2(6.7)	1(3.3)	4(3.5)
Village offer	6(20.0)	13(43.3)	16(53.3)	16(53.3)	51 (44.5)
Allocated by community	NA	NA	2(6.7)	11(36.7)	13(11.6)

- Numbers in brackets are percentages
- Data in some columns does not total up to 100 because of missing data

Key: NA= Not applicable

4.1.7 Land institutional rights

Table 7 shows sources of land occupancy security by respondents in the study area. The results indicate that majority of the respondents 72.5% believe to have village protection to land resources, while 23.0% of the respondents said tenure security of land resources is vested on in customary rights.

Table 7: Distribution of respondents on land security in the study area

	Number of respondents				
Land security	Msitu wa Tembo (n=30)	Lemkuna (n=30)	Ngage (n=30)	Endonyo Enkijape (n=30)	Total (n=120)
Have a title deed	NA	NA	NA	1(3.3)	1(0.83)
Have customary right	11(36.7)	1(3.3)	2(6.7)	8(26.7)	22(18.3)
Village protection	13(43.3)	27(90.0)	26(86.7)	21(70.0)	87(72.5)
No rights	3(10.0)	NA	1(3.3)	NA	4(3.3)

- Numbers in brackets are percentages
- Data in some columns does not total up to 100 because of missing data

Key: NA= Not applicable

However, a small proportion of respondents 3.3% said they have no right to land and only 1.0% said they have a title deed.

4.2 Distribution of respondents' main occupation by ethnicity

It was imperative to capture the main occupation of the respondents in this study based on ethnicity in order to understand factors influencing the large inflow of immigrants into Simanjiro District bearing in mind that it is a predominantly Maasai area who earn a living through pastoralism. But of late, there has been an increase in ethnic diversity from large influx of non-pastoralists immigrants 'farmers across the ethnic divide streaming into the district from all parts of the country. The survey revealed that the study area is a multi-ethnic society with its inhabitants engaged in different economic activities (occupations) such as farming, pastoralism, agro-pastoralism, formal employment and livestock trade as illustrated in Table 8.

Table 8: Distribution of ethnic group by their main occupation

Ethnic Background	Main occupation of household head					Total (n=120)
	Livestock keeper (n=39)	Farmer (n=59)	Both farmer and Livestock keeper (n=16)	Employed civil servant (n=1)	Livestock trader (n=5)	
Maasai	38(97.4)	6(10.6)	9(56.3)	NA	5(100.0)	58(48.3)
Pare	NA	18(30.5)	1(6.3)	1(100.0)	NA	20(16.7)
Chagga	NA	4(6.8)	3(18.8)	NA	NA	7(5.8)
Muarusha	NA	6(10.6)	1(6.3)	NA	NA	7(5.8)
Sambaa	NA	6(10.6)	1(6.3)	NA	NA	7(5.8)
Others	1(2.6)	19(32.2)	1(6.3)	NA	NA	21(17.5)

- Number in brackets are percentages
- NA-Not applicable
- Others were:Sandawe,Meru, Nyasa,Nyiramba,Mbulu,Irangi,Ngoni,Kamba.Nyia,Hehe, Wemba, Nyachusa, Barbaig

Generally the results showed that out of a total of twenty three (23) different ethnic groups interviewed during the survey, 48.3 % were the Maasai and 51.7 % were non-Maasai. Pare formed the greatest proportion of 16.7 % while the Chagga, Waarusha and the Sambaa

comprised of 5.8 % each of the entire ethnic composition. The members of the other ethnic groups' composed of 17.5 % of total respondents. The large population of the Pare ethnic group could be attributed to the proximity of the two study villages, Lemkuna and Ngage which are located adjacent to the two main Pare districts of Mwanga and Same along the Pangani River. Though Msitu wa Tembo is located close to both Moshi Urban and Moshi Rural Districts which are predominantly Chagga areas, the population of the Chagga in this village was insignificant. This could be possibly due to low commercial activities undertaken in the village.

However the proximity of the village to the original homes of the Chagga located 30 kilometres away at the foot of Mount Kilimanjaro and aided by a good tarmac road and availability of public transport also appear to have contributed to their small population in thc village. The Chagga were also reported to own plots in the area, but only appear at their plots at the onset of the farming season, notably, during land preparation, weeding and harvesting sessions. When these farming activities elapse, they return back to their dwelling places until the beginning of another farming season. This trend has reduced the possibility of their permanent settlement in the village, making their population small.

The main occupation of the respondents appears to differ by ethnicity. The survey revealed that the Maasai's constitute 97.4 % of the pastoralists while non-Maasai constituted of the farmers 89.4% of farmers were the non-Maasai. Farming and agro-pastoralism seemed to be an occupation undertaken across the ethnic divides in the study area with only 10.6% of the Maasai regarded farming as their main occupation. But the study showed that 56.3% of the Maasai were agro-pastoralists while Chaggas constituted 18.8% and 6.3%, respectively. While 100.0% of the livestock traders were the Maasai, all those who

reported formal employment as the main occupation were the non-Maasai. This implies that, the, members of the Maasai community still regard pastoralism as an important occupation and embraced cattle dearly, while the non-Maasai preferred farming to animal husbandry. This trend was reported to cause a conflict of interest especially in land use. While the Maasai demanded more land for their herds, farmers needed more land for agriculture. However, the large proportion of the Maasai agro-pastoralists and those engaged in farming depict a positive change towards other occupations other than pastoralism, which to them is customary.

An attempt also was made to ask herders whether they could switch on to farming and abandon cattle keeping practices completely. Their response was pastoralism is a precious occupation to them, which they cannot do without and would take them a substantial period of time to learn farming.

Formal employment is not significant in the area. This could be linked to the remote nature of the district hence making jobs in the formal employment few. It may also imply that few pastoralists have low access to formal education, which makes their number small in the common civil service occupation such teaching and employment in the health sector among others. The study revealed that the majority of the respondents in the area depend on agriculture for their livelihood. Therefore any form of conflict arising a long this line will have significant effects on agricultural productivity.

4.3 Education level of respondents by ethnicity

The numbers of years spent in school were significantly different across ethnic grouping. The survey showed that; slightly above one-third 35.8 % of the respondents have not

attended any school or are illiterate, with the Maasai constituting 55.8 % and the non-Maasai 44.2%. Table 9: Show details of years spent in school based on ethnicity.

Table 9: Education statistics based on ethnicity of interviewed household

Ethnicity	Minimum	Maximum	Mean	Std Error of mean
Maasai (n=56)	0	13	4.14	±0.54
Non-Maasai (n=64)	0	19	4.48	±0.51
Overall (n=120)	0	19	4.03	±0.37

Level of education of respondents (n=120)	Frequency	Percent
No formal education	44	36.7
Primary education	63	52.4
Secondary education	8	6.7
Post Secondary Education	5	4.2
Total	120	100.0

The maximum number of years spent in school by a Maasai is 13 years with mean years of 4.14 ± 0.54(S.E) while that by non-Maasai is 19 years with a mean of 4.48 ± 0.51(S.E). However, the overall number of years spent in school is 19 years with mean years being 4.03 ±0.37 (S.E). The survey revealed that the majority of the respondents 52.4 % have a primary school education which 36.7% have not attained formal education. Only 6.7% and 4.2% have attained both secondary and post secondary educations, respectively. According to 2002 Population and Housing Census the literacy rate in the district was 54% with net enrolment rate of 47% (URT, 2004). It was noted in some villages that only a single primary school was present.

In regard to secondary education, it was reported that, the District had remained for a long time period with only single secondary school located at the district headquarter, which could not suffice the educational needs for the entire district population in need of secondary school education. Beside this reason it was observed that though at the moment primary schools were found in majority of the villages, the Maasai were reluctant to send

their children to school. This was noted during field survey when many children of school going age were found in large numbers at home during school going hours. This prompted the researcher to ask children found at the homestead why they did not attend school and yet it was a school day. One child answered:

> *'My father did not send me to school, because there was nobody to look after our cattle'*

This view of the child prompted the researcher to seek clarification from the head of the household who replied:

> *'Who shall be responsible in grazing these cattle?'*

This implies that, the Maasai in the study area still lacked knowledge on the importance of education, or else, valued livestock keeping more than education. Another reason could be that stakeholders in the educational sector have failed to fulfil their role. This high level of ignorance on the importance of sending children to school among different stakeholders shall continue to deny the Maasai community the benefits of the Universal Primary Education (UPE) and the attainment of *Maendeleo ya Elimu ya Msingi* (MEM's) goals. This suggests that the willingness to enhance achievement of these goals among different stakeholders is paramount to enable the Maasai change this attitude towards education. In contrast the majority children of the non- Maasai communities, were in schools, even in areas where the numbers of the Maasai surpassed that of non-Maasai, an issue that was confirmed by primary school teachers teaching in the area.

4.3.1 Reason for choosing a village for settlement

The choice to settle in a particular village is represented in Table 10. The study revealed that there are quite a significant number of immigrants in the study area. A great part of these migrants are farmers from the non-Maasai ethnic speaking communities. However, good land for agriculture as reported by 30.3% of the respondents was the main criterion used to choose a village for settlement. The migrants compared differences in land productivity between newly settled area and their previous home of origin, which they claimed had been put under cultivation over a relatively long period of time. As reported by 19.1% of the respondents, good land for agriculture was closely linked to availability of water for irrigation. This could be attributed to the reason that, three of the study villages, were located a long the Pangani River known among the Maasai as *Moipo* where most farmers were engaged in irrigation farming. Though the study was carried out in the dry season, different crops in the field such as rice, water melon, onion and beans were observed growing in the fields in Ngage and Lemkuna villages where water for irrigation is readily available. This implies that in these two villages crop production system was a year round activity, hence attracting farmers from the dry parts of Mwanga and Same Districts.

Another reason for choice of a village for settlement as reported by 19.4% of the respondents' was the availability of good social services. Lemkuna was cited as a good example due to availability of necessary social services like schools, electricity, and a health centre, a reliable transport system and security, which were within 8 kilometres reach by village members at Spillway. In Ngage there were two primary schools located at *Orbili* and *Indepes* sub-villages and a secondary school, which is currently under construction. There is also a health centre located adjacent to World Vision offices.

However, some of the pastoralists appreciated the presences of immigrant farmers in the village as the driving force behind the successful establishment of these social services.

Table 10: Distribution of respondents on reasons for choice of a village for settlement

Reasons	Percentage
God land for agriculture	30.3
Availability of good pasture	16.5
Area has few cattle diseases	5.6
Availability of water	19.1
Availability of social services	19.4
Forced by the government	2.7
Others	6.4
Total	100.0

As far as pastoralism was concerned 16.5% of the respondents' said that they preferred to settle in a village due to availability of good pasture and 5.6% said their choice was based on low prevalence of animal diseases in the study areas. This implies that a preference to settling in a particular place is directly related to an individual occupation, with farming and pastoralism taking an upper hand. Beside these facts, water which is a vital resource, between the two livelihood groups, seemed to merge their interests. Therefore any future effort geared to addressing conflicts between farmers and pastoralists would be anchored on better management of water resources. Some people have been compelled to settle in the village by government directives, which helped the movement of people from spillway to Lemkuna to establish Ujamaa villages during operation Vijiji of the 1970s.This was reported by 1.1% of the respondents. However, 6.4% of the respondents reported that, there were other socio-economic reasons, such as marriage, caring for aged parents, invitation by friends, fishing and the perception held by immigrants that the pastoralists were an accommodating community.

The marriage mentioned is between and among different communities. There were intermarriages between the Maasai and other ethnic groups reported by key informants with most girls from the farmers' group marrying the Maasai men but very few cases of Maasai girls marrying farmers. The reason for these trends in marriage is that most Maasai girls disliked to get married to non-Maasai men. There was also a general fear that the Maasai demanded too many cattle as dowry, which the farmers could not afford. However, the intermarriages were said to have boosted the social relationship between farmers and pastoralists.

4.3.2 Views on land availability for livestock and crop production

Land as a major resource for crop and livestock production is not readily available in the study area. The concerns of the respondents are illustrated in Table 11. The results showed that over 90.0% of the respondents said that land is not available while less than 10.0% of the respondents answered otherwise.

Table 11: Distribution of land availability for crops and livestock production

Land availability	%
Readily Available	9.2
Not readily available	90.8
Total	**100.0**

However, during the field survey vast areas of land were seen laying idle. Further information was enquired from key informants who reported that water scarcity beset land shortage owing to a multitude of people tending to establish permanent settlements near water points in the area putting both resources under severe stress. This triggers competition among its users finally leading to conflicts over use and control. Kizima (2002) found that increased demand for land at household level was due to low level of

education of farmers who tended to increase crop production through increased farm size instead of using improved innovations or technologies in crop production.

The Maasai elders in the two of the study villages indicated that there is scarcity of land, for example in Ngage a sub-village called *Intepes* with no problem of land availability would not let any one to interfere with their land, not even the corrupt village government officials. In addition, at En'donyo En'kijape, was reported to have adequate land especially at *Olailela.* However this place is only inhabitable during the rainy season due to severe shortage of water. It was also reported that at one point in time immigrant farmers made an attempt to open farms in this land, but pastoralists evicted them by force. They vowed to defend their land by all means even if it meant by dying. They also expressed their concern over their land which was taken away from them at Laangai and *'Kosovo'*, a location synonymous to conflicts, named after a fierce battle that ensued between farmers and pastoralists over conversion of pastureland to cropland without the consent of the pastoralists themselves as key stakeholders.

In Laangai land meant to benefit all stakeholders was set a side to cater for the needs of those in need of large-scale agriculture, but the whole exercise had turned out to be an outfit of the district council officials and a few rich migrant farmers excluding the owners of land, the Maasai. This scenario was reported to have planted a seed of hatred among different stakeholders notably the Maasai and some district council workers. The conflicts in place in *Kosovo* had been caused by inversion of grazing land by farmers without the assent of the native pastoralists.

4.3.3 Nature and causes of land conflicts

The presence of resource use conflict was reported by 84.2 % of the respondents. While slightly a quarter of them reported otherwise. Table 12 represents the distribution of respondents on the absence or presence of resource use conflicts in the villages.

Table 12: Distribution of respondents on presence or absences of resources-use conflicts

Presence of resource use conflicts	Frequency of the respondents				Total (n=120)
	Msitu wa Tembo (n=30)	Lemkuna (n=30)a	Ngage (n=30)	Endonyo Enkijape (n=30)	
Yes	25 (83.3)	27(90.0)	26(86.7)	23(76.7)	101(84.2)
No	5(16.7)	3(10.0)	4(13.3)	7(23.3)	19(15.8)

- Number in brackets are percentages

The majority of the respondents admitted that resource use conflicts exists in the area Lemkuna leads as reported by 90.0% of the respondents, Ngage 86.7%, Msitu wa Tembo 83.3% and 76.7% at Endonyo Enkijape. The existence of land use knowledge among the village community members in Endonyo Enkijape and Msitu wa Tembo have helped reduce the incidences of land use conflicts. This awareness was passed particularly to the women by Land Management Programme (LAMP). Key informant and even respondents during field survey expressed their appreciation to LAMP officials for education on matters pertaining land use.

4.3.4 Reasons for land shortage in the study area

Respondents were asked to give reasons for land shortage in the area. Table 13 represents these reasons. Increase in human population was reported by 98.1% of respondents as one of the major factors. According to 2002 housing and population census, the population of Simanjiro growth rate was reported to stand at 7.0% with major contribution resulting from

that of immigrants. In this study 79.4% of the respondents who reported land shortage in the area were immigrants' farmers and this result was not surprising. It was also noted that the majority of the current farmers in Simanjiro district are either fishermen or else they had taken part in artisanal mining; but with decline in fishing activities and difficult situation that is facing artesianal mining, the only option left as a means to earning a living was full time farming.

Table 13: Number of respondents on reasons for land shortage in the study area

	Number of respondents (%)				
Reasons for land shortage	Msitu wa Tembo (n=30)	Lemkuna (n=30)	Ngage (n=30)	En'donyo En'kijape (n=30)	Overall (n=120)
Increase in human population	30(100.0%)	21(70.0)	22(73.3)	30(100.0)	98.1
Immigration of farmer	24(80.0)	14(46.79	20(66.7)	27(90.0)	79.4
Land use conversion	9(30.0)	3(1.0)	13(43.3)	6(20.0)	29.0
Increased livestock	7(23.3)	13(43.3)	8(26.7)	8(26.7)	33.6

Land uses conversion mainly, grazing lands into farmland as reported to by 29.0% of the respondents appear to have contributed significantly to land shortage. Some areas have also been converted into hunting blocks, thus barring establishment of farms in these areas. According to key informants most areas that previously yielded good pastures have now turned into cropland. However, one third of the respondents said that the rise in the numbers of livestock is significantly putting land under stress. It was also reported that the livestock numbers have reduced except in some patches around water points. This has an implication that as water continues to become a scarce resource; it might turn out to be a major source of conflict among different stakeholders in the area.

4.3.5 Extent of resource use conflicts

The extent and effects of land and water use conflicts on rural population livelihoods were assessed. Generally the parameter for the extent of resource use conflicts was established

through enquiry from respondents across the four study villages. However the responses differed from one village to another. Conflicts were rated from zero to high levels; no conflict, disagreement, tension, animosity, violence and, verbal conflict. The extent of resource use in the study villages in Simanjiro district are shown in Figure 4. The findings show that in all the study villages, conflicts ranged from zero, low verbal to very high something escalating to violence.

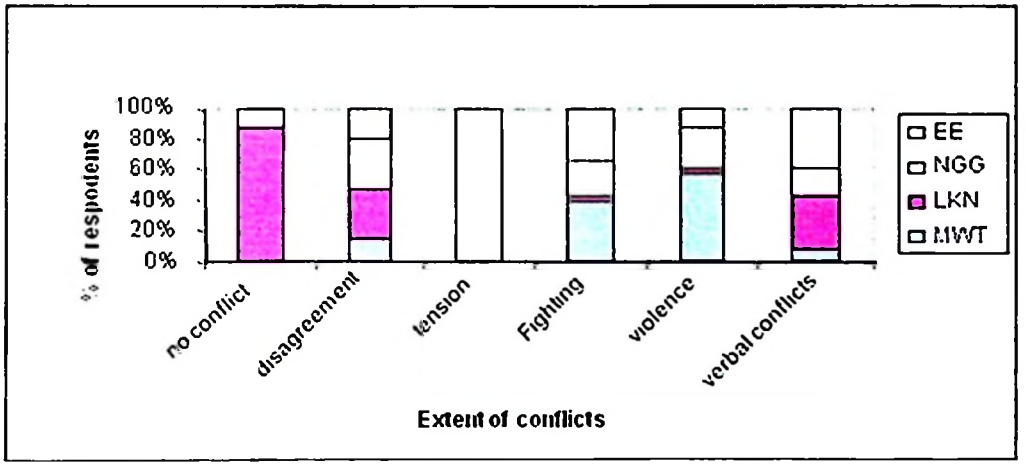

Figure 4: Extent of conflicts in the study area

Key: EE; Endonyo Enkijape **NGG;** Ngage; **LKN;** Lemkuna; **MWT;** Msitu wa Tembo

In Lemkuna 87.5% of the respondents reported that there is no conflict and 35.0% said there were disagreements between farmers and pastoralists over immigrant herders grazing their livestock close to farming plots, which accidentally destroy crops especially during the dry spell. Minor disputes arising from the release of excessive water to other farmers plots flooding their fields and destroying crops, were also reported. The low level of conflict was attributed to the existence of good leadership, adequate water with well established irrigation canals and undisturbed stock routes. During focus group discussion the group members were asked whether conflicts over water were persistent in their village. The response was that water conflicts existed between farmers and pastoralists,

occasioned by pastoralists tending to herd cattle in irrigation water schemes during the dry season (drought) but not otherwise.

'Livestock herders graze their cattle near farming plots when the drought comes, no real fights, but we just yell at each other',

But also minor quarrels were reported to arise among farmers; not over water scarcity for irrigation, but over plot boundaries and irrigation water management.

'Water is still available as it was in the past'.

During field survey it was observed that the irrigation infrastructure at Lemkuna is vast and well established, compared to the size of plots owned or cultivated by farmers. Underutilization of water for irrigation featured in the discussion. Excessive water was either released to flow back into the river or in some parts left to flow wastefully into the bush. This implies that land area that can be irrigated and water for irrigation are available; but the water and land resources have not yet been exploited into their full potential a state which would minimize the likelihood of conflict occurrence.

As a result of land use conflicts, it was reported that plot sizes have decreased lately in comparison to 1976. It was reported that Lemkuna village is a product of Operation Vijiji (OP) which began in the late 1970s. During this period couples were allocated 6ha each. However, the rise in population mainly caused by increasing number of immigrants, prompted sub-division of land to avoid conflicts.

In spite of the rise in population of immigrants, results of the survey show that the availability of plots for hire was not a problem in the irrigation plains. The early inhabitants of the village were the main sources of plots for hire. It was also reported that

the Maasai who had no interest in farming in the past are presently struggling to own farming plots. Acquisition of these plots is either accomplished through buying or village offer by acceptance of an application sent to the village land committee.

> *'There is no scarcity of land for cultivation, because water for irrigation is readily available and exploitation to its full potential has not been achieved'.*

A conflict between farmers and pastoralists was reported to ensue in the village as a result of farmers beating donkeys that were invading farming plots. The stray donkeys were reported to come from as far as Lendanai, a village located thirty (30) kilometres away from the study area. Though the owners of these animals were not known, but the Maasai could not just sit back and watch farmers harassing animals, a situation that has lead to a war of words between farmers and herders.

However in Msitu wa Tembo the extent of land and water use conflicts between farmers and herders was high and characterised by violence and fighting as reported by 56.5% and 38.5% of the respondents, respectively. This was caused by disagreement over beating of herd boys, injuries and poisoning cattle by unknown people. This provoked anger of the herders and subsequently led to serious violence between farmers and pastoralists. The aftermath of the situation prompted the introduction of land use education in the village facilitated by LAMP. This helped reduced tension between the Maasai and other stakeholders. In Ngage all (100%) of the respondents reported existence of tension. This was due to rampant corruption on allocation of large pieces of land to few rich people who just hoard.

The violent conflicts which were reported by a quarter of the respondents was specifically said to be a farmer-farmer affair, exacerbated by excessive drinking of the local brewed alcohol, which enhanced fighting over plots boundaries and irrigation canals. These conflicts were reported to be occasional and only happen when there is a bumper harvest of onions, which increased the income of farmers.

The conflicts in Endonyo Enkijape varied from mere: verbal attacks, disagreements, tension, to violence. These conflicts are common in the dry season due to scarcity of water and during farming season when crops are in the field. Fighting was reported to result from the adamant Waarusha ethnic group's encroachment of grazing land. The same community was also reported to lead in corrupting district council officials. They were also reported to be in a habit of mocking the Maasai and members of the other ethnic groups by opening unjustifiable court charges against them. Generally this study reveals that the extent of conflict varies from one village to another.

4.3.6 Effects of land and water conflicts

The study revealed that the effect of conflict among the communities is very serious. It has even led to displacement of some communities. This was reported in Msitu wa Tembo where farmers-herders conflicts resulted in some houses being set a blaze. Some of the effects are enumerated in Table 14, showing the major effect of land and water use conflicts in the study area as a breakdown in social relationship among stakeholders as reported by 84.2% of the respondents. This has been directly linked to lack of trust on village leaders as reported by 64.2% of the respondents.

Table 14: Distribution of respondents on effects of land and water conflicts

Effects of land and water conflicts	Distribution of responses			
	Rank	Count	Responses (%)	Cases (%)
Defected social relationship and mutual understanding among stakeholders	1	101	28.1	84.2
Lack of trust on village leadership	2	77	21.4	64.2
Reduction in productivity	3	75	20.8	62.5
Insecurity and fear among farmers and pastoralists	4	69	19.2	57.5
Destruction of crops and irrigation facilities	5	38	10.6	31.7
Total responses		**360**	**100.0**	**300.0**

Both farmers and pastoralists doubted the role of their leaders in this conflict. Farmers complained that the village leadership need thorough investigation because they make them quarrel with pastoralists for no apparent reason. The incessant conflicts especially the farmer-pastoralists types have reduced productivity resulting from pastoralists invading farms before all crops have been harvested. The crops that are destroyed include root crops, pigeon peas and banana trees on the irrigated fields. This was witnessed by the researcher during field survey. This situation completely discourages farmers from growing such crops which contribute to food security in the area, bearing in mind that the area is semi-arid. Low productivity could also be explained by the herds' death following poisoning and severe injuring of donkeys as reported at Ngage. Furthermore, the insecurity level and fear among the stakeholders particularly women-farmer headed household have been completely discouraged from growing this crop due to fear of the Maasai *Morans*. Damage of crops and irrigation canals by herds at Ngage was reported, whereas early planting of fields at Endonyo Enkijape would always be discouraged by invasion of these plots by livestock. Low crop yields have been linked to late planting.

4.3.7 Governance and conflicts in Simanjiro district

Governance has a wide variety of meanings, ranging from a narrow concern with the manner in which the state manages public goods and services to the different levels of accountability, transparency and legitimacy in use of state power. Other definitions emphasize the importance of participation in decision-making processes as an integral aspect of governance (Rahman and Robinson 2006). According to the Organization for Economic Cooperation and Development (OECD), some of the underlying or triggering causes of conflict are illegitimate or weak institutions, corruption, insufficient respect for human rights, lack of good governance, and the perception that the administrative and political channels are not adequate or that they are inaccessible.

In this study governance was realized to be a wide field that encompasses a number of dimensions. These include rule of law; popular participation; democracy; transparency and accountability; corruption and policy priority to name but a few. For the purpose of these study three elements of governance: transparency participation and corruption were given high priority. The study therefore has tried to draw a link between governance and its role on resource use conflicts. The views of the respondents regarding governance have been presented in this section.

4.3.7.1 Land alienation, participation and land use conflicts

Participation on land alienation is one of the key issues that have raised a mixed reaction among different stakeholders in Simanjiro district. Different groups including women have reported their concerns. In view of the above, a general perspective of the respondents was investigated regarding the same matter by asking them whether they are involved on land alienation matters. Table 15 presents the views of the household head. As reported by

92.0% of the responded said they were involved, while 28.0% said they that they were not involved. At the same time the respondents were asked whether excluding them from land matters may lead to conflict, 95.0% agreed while only 5.0% disagreed implying a very high level of significance. Further information on the extent of their mode of participation was solicited but slightly less than a half of the respondents reported that they do so in public meetings occasionally convened by the village authority.

During the group discussion held in different villages in the study area, two contrary views emerged. At Ngage the group members were asked whether they take part or not on matters related to land and water management in their villages. They reported that the village government convenes a meeting and they are given resolutions on what has already been deliberated upon which they either accept or reject if they are dissatisfied.

Table 15: Respondents inclusion responses on land alienation matters

	Number of respondents				
	Msitu wa Tembo (n=30)	Lemkuna (n=30)	Ngage (n=30)	Endonyo Enkijape (n=30)	Total (n=120
Are village members involved on land alienation matters					
Yes	27(90.0)	24(80.0)	21(70.0)	20(66.7)	92(77.0)
No	3(10.0)	6(20.0)	9(30.0)	10(33.3)	28(33.0)
Can exclusion of village members on land matters lead to conflicts					
Yes	28(80)	27(90.0)	30(100.0)	29(96.7)	114(95.0)
No	2(6.7)	3(10.0)	0(0.0)	1(3.3)	6(5.0)

Key: Numbers in bracket are percentages

The case was quite different in Lemkuna village. When the focus group members were asked to declare the role of the village members' participation on land matters, they

admitted that neither them nor their ideas were involved in land sub-division matters. One member of the group lamented:

> *"We just rise up in the morning and find that our lands have been distributed to other people without our consent; an act that is done with top secrecy".*

Sections of the household also strongly argue that they were not involved on matters pertaining to land. They were of the opinion that; they only witnessed a few individuals allocated farming plots and if they there was any form of involvement it was only done through their elected or nominated leadership like the village chairperson, area local councillor or the Village Executive Officer. The leaders were reported to usually invite the villagers to the village general assembly to give their opinions in regard to the issue at hand. However, some respondents reported that their plots were surveyed and allocated to other persons without their knowledge. This event took them by surprise, while they were busy with land preparation, they saw people who surveyed and allocated land under their ownership to another person without their consent.

This situation was reported to propagate seed of hatred between different stakeholders. There was also a feeling among the respondents that participation was done through few canning individuals in the village who took decisions pertaining to land on behalf of the members of the village. The people implicated in this aspect were district council officials, who were accompanied by a few rich persons. For example some women raised the issue of gender bias on this aspect. They reported that women were discriminated against, and their opinions were not incorporated at all and the entire business is perceived to be a man-biased affair. On the other hand immigrant farmers labelled the participation as ethnic-biased. They pointed out that it was only the native Maasai who were involved to carry out

decisions affecting land matters. When further inquiries were made from the key informants the Maasai were also blamed by the farmers. This notion was reported to inculcate a sense of fear and suspicion between pastoralists and farmers.

Another level of participation on land issues, which was reported, was through taking part in proposing areas for various land use such as, making boundaries for grazing land, farmlands and conservation. The major role of the village members is only that of witnessing, identifying of land use mapping and not allowing them make final decision.

The respondents were asked if there were reasons that inspired them to demand their right to participation on land matters. Slightly half of them reported that, it is their basic right and the contrary is a violation to their basic right to land ownership. Thus they demanded full participation on this issue pointing out that exclusion or partially involving a section of the stakeholders is likely to enhance conflicts since people will be dissatisfied with decision made on their behalf. Participation is essential to all stakeholders including farmers, herders and government department for it helps to eradicate blames directed to a single group and thus reducing conflicts. However, it was also reported that the leadership concerned either local or belonging to the district council and their cronies are perceived as land grabbers. Therefore to a large extent involvement of all stakeholders' defuse powers of those who would want to alienate their land in absence of their knowledge. They also underscored the importance of participation in reduction of corrupt practices in handling land matters. Pertaining to the arguments put forward by the respondents this study revealed that though people take part in decision affecting their land matters the level of participation is low.

4.3.7.2 Authority responsible for land alienation

Since the land alienation question and participation raised mixed reactions among different stakeholders, the study also underscored the importance to enquire on the authority responsible in accomplishing this matter. Table 16 presents the opinion of respondents on authority involved on land alienation, with 47.5% reporting that the village government played part in alienating land and 21.7% blamed the village land committee and 12.5% reported both the land committee and the village government are involved and only 10.8% blamed LAMP. Other authorities blame for land alienation included land officer, and customary leaders commonly known among the Maasai as 'Laigwanak', and colonial chiefs. A minority 6.7% was of the opinion that nobody was responsible for land alienation. However, the study revealed that village government was the top most authority involved in setting a side land to be put into different uses. The role of LAMP in land use was investigated. However, LAMP played a greater role in Msitu wa Tembo. In the focus group discussion and other discussion held with LAMP it was reported that LAMP initiated land use education at Msitu wa Tembo on a gender perspective, targeting women who are the most marginalised group on the land question.

Table 16: Distribution of respondents' views on the authority responsible for land alienation

Responsible authority in land alienation	Villages				Total (n=120)
	Msitu wa Tembo (n=30)	Lemkuna (n=30)	Ngage (n=30)	Endonyo Enkijape (n=30)	
Village land committees	7(23.3)	13(43.3)	4(13.3)	2(6.7)	26(21.7)
Land officer	1(3.3)	NA	2(6.7)	NA	3(2.5)
Village government	8(26.7)	14(46.7)	23(76.7)	12(40.0)	57(47.5)
Nobody	NA	1(3.3)	1(3.3)	1(3.3)	3(2.5)
Customary leaders('Laigwanak')	NA	2(6.7)	NA	NA	2(1.7)
LAMP	13(43.3)	NA	NA	NA	13(10.8)
Colonial chiefs	1(3.3)	NA	NA	NA	1(0.83)
Land officer & village government	NA	NA	NA	15(50.0)	15(12.5)

- Key: NA= Not applicable

Numbers in brackets are percentages

The role of LAMP in land use was investigated. However, LAMP played a greater role in Msitu wa Tembo. In the focus group discussion and other discussion held with LAMP it was reported that LAMP initiated land use education at Msitu wa Tembo on a gender perspective, targeting women who are the most marginalised group on the land question. LAMP trained village legal workers on the Land laws of 1923 which permitted villages to distribute up to 10 hectares and distribution or allocation of land above ten acres was the duty of the higher level authority. This type of education was strongly opposed by village leaders and formed the basis of villagers-leaders' conflicts in the village. In fact prior to the introduction of the knowledge of land use to all stakeholders, leaders distributed grazing land illegally. The outcome of land use and land right knowledge prompted women to demonstrate against the attempts of village leadership who wanted to sell their land. However, following the repeal of the 1923 land act and replacement with the 1999 land act LAMP has been encouraged to educate villagers about the new land act.

4.3.7.3 Transparency and resource use conflicts

The respondents were asked why they thought transparency was away forward to address resource use conflicts. They reported that transparency would help uncover unfairness directed towards a few stakeholders in handling local issues and land related matters as well. For example, the views raised were that, a transparent situation would enable all stakeholders to understand laws governing land issues. It was also apparent that with transparent transactions people would demand involvement on issues affecting them, taking into consideration that, a participatory decision making process on land matters would help out reduce complains and ensure that stakeholders are satisfied with decisions passed by all. Furthermore, a transparent situation would lend a hand to bring to light injustices directed towards stakeholders by the concerned authority thereby offering fair

opportunity to address any land and water related conflict situation which would help to relieve their leaders the burden of conflict resolution, hence minimizing or eliminating completely any possible future causes of conflicts. On the side of pastoralists, they thought that, transparency would provide them with a chance to inform both immigrants and district council leadership that the land belonged to them and thus should not be tempered with. This has an implication that the general leadership in the area often takes advantage of the Maasai people ignorance on land matters.

Key informants from the Maasai community argued that truth would enable indigenous secure their land. However, it was reported by the respondents that, in order to avoid any form of prejudice directed towards a certain community or stakeholder in connection with the land question, transparency would enhance respect for the local leaders, hence help build confidence in them. Subsequently, the whole process would enable all stakeholders to participate on enactment of by-laws that govern land issues with a strong feeling that: "Land is synonymous to an individual's life". Generally, the respondents argued that once one's land right has been deprived, a person had nowhere else to go, other than to seek justice by pressing hard on those responsible in snatching their basic right, to land ownership an issue that is perceived to fuel conflict. According to one respondent reported,

> *'Where else do you think one can go when his/her land right is denied by our corrupt people, apart from fighting them back. Where do think one can go?*

4.3.7.4 Participation on land matters

When the discussants were asked to declare their role on participation on land matters, they admitted not being involved in land sub-division. They however revealed that, in order for

one to acquire land he/she has to pay between TAS. 6,000 – 10,000 per acre to the village chairperson. In spite of these payments, their request is not fulfilled; rather, rich and influential people are given large pieces of land because of corruption. Applications of this category of people for land are swift and given immediate attention, relative to poor men and women in the village, whose applications take long to be processed. It was also reported that people as far as Moshi own big plots, which are never put into any productive use, but are held, for speculative reasons. Another scenario of corruption raised during the FDG was the issue of reserving land for rich men, where a single individual owns huge trucks of land and entrusts it to the villagers in return to two (2) sacks of rice per acre. Absolutely there is no transparency on land issues, leaders were reported to allocate good arable land amongst them, a land that is put on hoard at the expense of the landless. The least that could be done is lease it, to people coming from other areas and these dirty tricks, forms their means of survival year in year out. It was argued that everybody has the right to land ownership, though rich people are most favoured by village leadership for reasons best known to themselves, most precisely to state corruption, they bribe the village leadership.

4.4 Steps taken to resolve conflicts

The steps undertaken or method used in resolving conflict depends on the nature and magnitude of the conflict. In all cases, where conflict has been occasioned by crop destruction and where the offending herdsman admits guilt, interpersonal agreement may be reached. Depending on the extent of the damage, compensation (varying in amounts) is often demanded and paid. Where there is minimal crop damage and the herdsman has showed some concern, only a warning not to allow a repeat performance is given. This is a situation where pastoralists and farmers have co-habited for a long time. In such cases the

farmers speak the local language very fluently, thereby enhancing social integration and good neighbourliness. Further confirmation on the use of this criterion was done during group discussions when one of the members reported that:

> *"We have got no problem with old immigrants. They understand our traditions of problem solving methods. We only face hard time with new immigrants who report minor cases to the police further complicating minor issues which should be resolved without external help".*

There are other instances where farmer/pastoralist interpersonal relationship is not very cordial. Conflicts that arise in such situation are not usually resolved by personal intervention. The village head and the head of the pastoralist community (*Olaigwanani*) are usually involved in settling such disputes. This is the most frequent form of settling disputes, because the farmer whose crops have been destroyed usually asks for outrageous and unrealistic compensation. The pastoralists, on the other hand are not prepared to give in to the demands of the aggrieved farmer. A combined effort of the village leadership, which includes the village chairperson, Village Executive Officer and the *Ilaigwanak* (plural) is often used to arrive at a reasonable compromise. Most farmer/pastoralist conflicts are resolved in this way.

The steps of dispute resolution adopted by village leadership are to first assess the extent of damage to crop in the company of the Olaigwanani before the amount of compensation is determined. A case in point occurred when we were at the tall-end of our field survey in Msitu wa Tembo when, a *En'kaiyoni who* grazed on maize farm was brought before the council of elders. Similarly, in a conflict a rising from livestock theft, the following steps are undertaken. A meeting of the council of elders would be convened to decide the

punishment. The burden would normally be tied up to the entire clan *'en'kishomi'* or *'orgilata'*. The types of cattle to be paid by the offender are referred as *'inkishu en'korotik'* literally translated as *'cattle of shame'* which implies that he has to pay twice the numbers stolen, as reparation and penalty. In regard, the none-Maasai'(*ormeeki*), there is no dialogue, other than, to payback the stolen animals, once evidence has been established beyond any reasonable doubt. Severe punishment amongst the Maasai community is directed to a member of their own community, in order to eliminate the vice amongst members of Maasai speaking ethnic group.

The major conflict procedure preferred in the village is where the rivals come to agreement. It was reported that in almost every ward in the district, in every village there is a security committee, which oversee that all inhabitants of a given village enjoy peace and tranquility. The committee members were reported to comprise the village chairperson, Village Executive Officer, Laigwanak, elders from both pastoral and farming communities and religious leaders. The members of this committee are invited when there is a crisis and also to attend the village general assembly where their contribution highly regarded.

On the whole, the most hated mode of conflict resolution is through the police/court, which is rarely used. *Ilaigwanak* tends to believe that the police often find a way to exploit the Maasai herdsman in the event of a reported conflict and often brutalise Maasai in order to extort them. If and when police is involved, the *Ilaigwanak* would prefer their cases to be handled by high-ranking officers who seem to be better placed to handle conflicts than the other ranks who harass the Maasai. "Pastoralists do not always like to be dragged to court or police stations, because they alleged they end up paying more in both legitimate and unofficial fees and fines", Said a pastoralist.

"They (the public) see us as very rich people and so expect us to pay whatever fine is imposed on us, guilty or not guilty."

Where the conflict is beyond the competence of community leaders and traditional leaders the local government is often brought in. This is when the conflict constitutes a significant threat to law and order.

4.4.1 Reaction to unresolved conflicts

The respondents' reactions to unresolved conflicts were enquired. Table 17 shows the distribution of the reaction of the respondents on the same, with almost a quarter of them stating that they would prefer to complain to the higher government than to the village leadership. During the field survey some respondents said they would prefer to complain the issue either to the District Commissioner or the Prime Minister. There was a general feeling that if one pursues his/her land conflict case within the circle of village leadership, the stronger person with financial strength would always win the case. A significant number of respondents preferred to either file a case in the ward council or in a court of law where they thought that justice would be administered impartially.

Table 17: Reaction of respondents to unresolved conflicts

Respondents reactions	Frequency (%) (n=120)
Complain to high government	24.1
File case in ward council	21.2
File case in court of law	21.4
Use water association leaders	12.7
Give up crop farming or livestock keeping	2.4
Come to agreement with rivals	18.4

Although the court was preferred by 21.4% of the respondents, they were located far away in Moshi and Arusha. Therefore, in a situation where the two warring parties choose to patch up their differences an agreement to settle the disputes would be proposed. However, in regard to water conflicts, water associations' leaders were given precedence to mediate on the premise that parts of these leaders were farmers and stood a better chance to understand well farmers complaints. However, a small number of respondents (2.4%) reported that they would rather give up crop farming and livestock keeping and migrate to other areas where there were no conflicts.

4.4.2 Conflict resolution interventions

One of the important measures in ensuring peace building is conflict resolution. Conflict resolution presupposes that the state of conflicts is already present and therefore it needs to be resolved. In other words, the conflict has to be brought to an end and peace has to be restored. Conflict resolution measures usually constitute peace negotiations and implementation of agreements (Mpangala, 2004). Table 18 represents the institutions used in the study area for conflict resolution.

Table 18: Institutions proposed by respondents for conflicts resolutions

Type of institution	Number of respondents
Primary courts	22.1
Wards tribunals	17.2
Village community committee	30.4
Elders, neighbours and relatives	30.4

Respondents were asked to mention the institution they preferred to intervene in resolving conflict. The use of village community committees and use of elders, neighbours and relatives were preferred by 30.4% of respondents' respectively, while 22.1% and 17.1% of the respondents preferred use of ward tribunals and primary courts respectively. This

implies that the village community committees comprising village elders of the farming and pastoral communities and respondents considered these kinds of institutions as comprising people with a deeper understanding of their problems. However, on a few respondents knew the ward tribunal. On the other hand the courts were reported to delay justice.

4.4.2.1 Effectiveness of the intervention proposed

The effectiveness of each institution identified in conflict resolution was investigated during the study. The result in Figure 4 demonstrates a mixed reaction in regard to respondents' responses. Over 60.0% of the respondents said interventions by elders, neighbours and relative are very good in conflict resolution and only 12.2% felt the opposite. A bout 39% of the respondents preferred to use Village community Committees in conflict resolution. The next best preferred intervention was the ward tribunal which was preferred by 39.0% of the respondents.

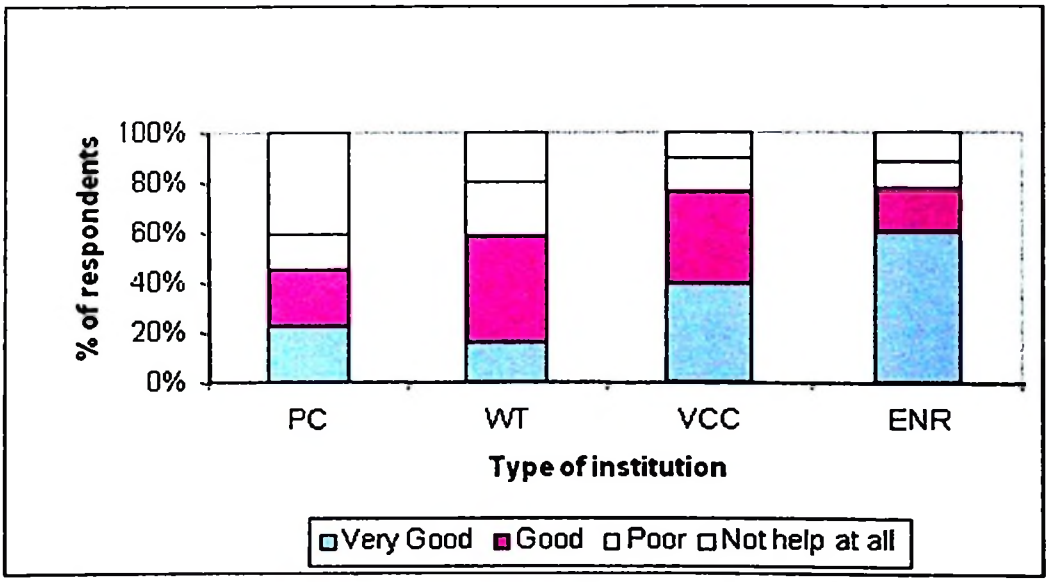

Figure 5: Distribution of institutional effectiveness on conflicts resolution

Key: **PC; Primary courts. WT; Ward tribunal. VCC; Village community committee: ENR; Elders, neighbours and relatives**

During the survey, it was evident that a section of the respondents lacked the knowledge of the operation of ward tribunal. The least chosen institution to help in resolving conflict was the primary court with over 40.0% of the respondents reporting that it is very poor. The reason given for low preference of primary courts included their absence in the district and the cost implication of running court cases for which solutions could easily be found if elders sat down and looked into matter critically.

4.4.2.2 Conflicts mitigation measures proposed by respondents

Improvement of the conflict situation in the study area is considered imperative. Thus there was need to enquire the proposed measures from the respondents to mitigate these conflicts. About (114) 95.5% of the respondents preferred separation of grazing land from crop land as the correct measure to manage the conflict. This was possibly due to the fact that majority of the agro-pastoralists are the Maasai and their perspective on this does not much diverge from that of their counterpart pastoralists. However, education on land use planning as a mitigation measure to such conflicts was proposed by 89.1% of the respondents. The measures proposed for conflict resolution are demonstrated in Figure 6.

The pastoralists acknowledge that they have never received education on good land use except those who reside in Msitu wa Tembo where LAMP made a big initiative to reduce tension among various stakeholders. Water for both domestic and livestock use in some villages was identified as one of the major causes of conflict between various stakeholders.

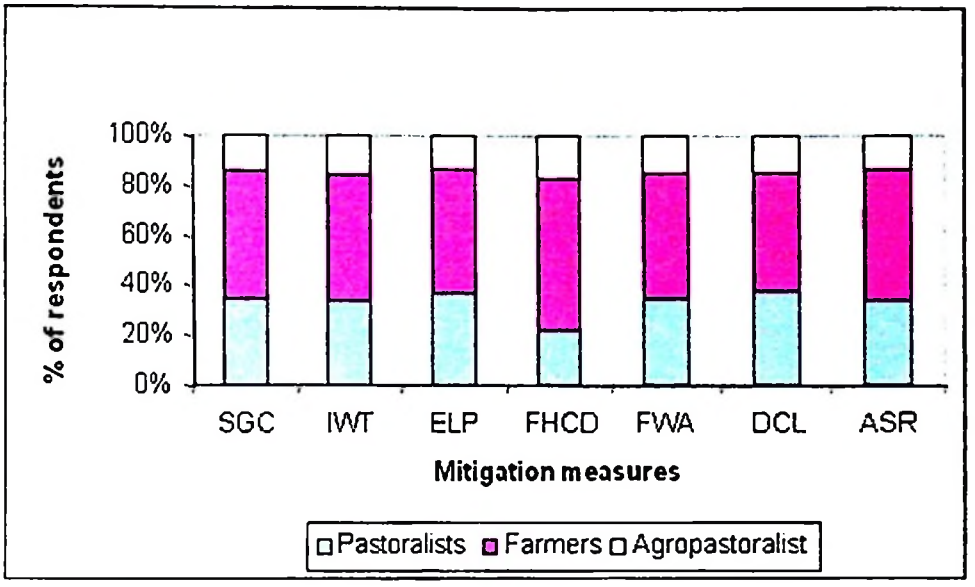

Figure 6: Distribution of measures proposed for conflict mitigation

Key: **SGC-** Separating of grazing and crop area. **IWT-** Improve water availability
ELP- Education on land use planning. **FHCD**-Fining herders for crop damage
FWA- Fair water allocation procedures. **DCL**-Dam construction for livestock water use
ASR- Agreement for sharing resources

Construction of dams to harvest rainwater in the upland could help prevent animals seeking water in riverine where most farm plots are located. The matter in regard to fair water allocation featured mostly in Ngage where the irrigation infrastructure is still traditional with frequent cases of farmer-farmer fights over diversion of irrigation water. However, farmers proposed imposition of heavy fines to herders for crop damaged an issue that show low response from the pastoralists' side. Nevertheless the agreement for sharing the resources wisely was also reported by three quarter of the respondents. This implies that if the process is well mediated and all livelihood groups are let them agree on how to share water and land resources on their own without external interference, the likelihood of settlement of these once and for all among all stakeholders is possible. Improvement of water availability and dam construction for livestock use was cited as serious measures that require immediate action in order to reduce land and water disputes in the area.

4.5 Nature of resource use conflicts

A binary logistic regression model was used to predict factors influencing the likelihood of the nature and causes of resources use conflict in the study areas. Table 7 gets into the heart of the results of logistics regression analysis, for the four study villages in Simanjiro district. It shows the coefficients (B), their standard errors, the Wald Chi-square Statistics, associated p-values, and odds ratio (Exp (B)). The model predicted correctly the relationship that at 84.1% and significantly at ($p<0.05$). The model Log likelihood ratio of 183.84 indicating that there is a higher fit between the model and the Nagelkerke R Squared = 0.18, suggests that a bout 18.0% variation in the nature and causes of resource use conflict is due to independent variables in the model.

Factors with likely positive effects on nature and causes of resource use conflicts are the conflicts from; farmers over farm plots, herders over water resources, and farmers and herders over land use. These were significant predictors on the nature and causes of resource use conflicts as indicated in Table19. The model showed that; for every one unit increase of farmers conflicts over farm plots significantly ($p<0.05$) increase the likelihood of nature and causes of resource use conflicts in the study area by an odd of occurrence of conflicts versus non-occurrence increased by a factor of 4.022. This was best demonstrated in those villages where farming was the prominent activity and importantly where plots cultivated are under irrigation and majority of the inhabitants are farmers. Plots under cultivation are small due to salt accumulation and decrease fertility that prompt farmers to struggle to own or hire new plots before the new season starts. Conflicts also emanate from double allocation or leasing of a single plot to more than one person in given farming season thereby triggering friction between the members of the same livelihood group. That is conflict between farmers versus farmers.

Herders' conflicts over water use, whose parameters estimate is significantly differed from zero ($p< 0.05$) increases the likelihood of nature and causes of resource use conflicts by a factor of 2.175. Common in villages located a way from permanent water sources. In Msitu wa Tembo the sub-villages like *Loontoto* had permanent water sources which were used for both domestic and livestock by the surrounding community. Over time water supply system to the community, mostly downstream was transferred through piped connections without seeking approval of the concerned parties. This scenario forced the pastoralists to dismantle the water pipes and let the water flow free by into water troughs for use by cattle.

At Endonyo Enkijape, the water use conflicts by herders were apparent. The village was initially referred as *Orkesumet* which means a well. The wells were dug by different Maasai clans who have lived in the village by then. This implies that every Maasai clan had its own well. The inauguration of the village as district headquarter had attracted many immigrants which increased the demand for water use available in the Maasai traditional wells '*ilchorroi* 'owned by different Maasai clans.

It is a government directive, that all people have a right to draw water in the wells. But it has not provided an alternative source of water. This triggers the anger of the pastoralists hence decided to take full control of the wells. These trends have instigated conflicts between different stakeholders.

Table 19: Factors influencing resource use conflicts in the study area

Variables	Estimates					
	B	S.E.	Wald	df	Sig.	Exp (B)
Farmers over farm plots	1.392	.545	6.531	1	0.011*	4.022
Farmers over boundaries	-.338	.646	0.273	1	0.601	0.713
Herders over grazing resources	-.793	.443	3.210	1	0.073	0.452
Herders over water resources	-1.489	.505	8.685	1	0.003*	2.175
Fair water allocation procedure	.777	.477	2.659	1	0.103	0.226
Farmers and herders over water use	-.695	.562	1.528	1	0.216	0.499
Farmers and herders over land use	1.237	.525	5.539	1	0.019*	3.444
Constant	-1.367	.833	2.693	1	0.101	.255

Model Summary

Overall percentage	84.1
Model chi-square	27.023
-2 Log likelihood	183.84
Nagelkerke R Square	0.18

* = Indicate Significance at p<0.05 level

The estimate for farmers and herders variable over land use is significantly different from zero ($p< 0.05$) with the likelihood of nature and causes of resource use conflicts a factor of 3.444. Land conflicts between the two livelihood groups were evident in almost every village in the study area. These conflicts could be linked to the establishment of farms on grazing land, blocking of livestock routes and crop damage by cattle.

4.6 Clustering the nature and causes of resource use conflicts

Figure 6 presents a dendrogram of cluster analysis that attempted to explore the grouping of various nature, causes and issues on governance in resource use conflict in the study area. The variables have been defined in (Appendix: 2). The Cluster membership suggests that the nature and causes of resource-use conflicts were to a large extent specific to a livelihood group or village. This implies that conflicts among same livelihood groups, conflicts between livelihood and conflicts between state and livelihood groups' settings are likely to provide equal opportunity for nature and causes of these conflicts. For instance conflicts between different livelihood groups, conflict between the state and livelihood

groups and conflict among same livelihood groups belong to different clusters (cluster A and C). However the clustering shows that corrupt practices have a close relationship with occurrences of resource use conflicts particularly, conflicts between farmers and herders over land in Ngage and Endonyo Enkijape, where as in Lemkuna the level of transparency in dealing with resource issues is low, hence having a close relationship with conflicts between farmers versus herders. Conflicts between livelihood groups are likely to occur in Msitu wa Tembo.

Common state conflicts and livelihood groups are those involving government departments and livelihood groups. The clustering pattern in (Figure 7) revealed that none of the nature and cause of resource use conflicts are associated with neither pastoralists-pastoralist conflicts, pastoralists versus large-scale farmers, farmers versus pastoralists nor farmers and government officials (cluster D). Further analysis shows that conflicts among the same livelihood over utilization of resources are common as demonstrated by incidences of the same appearing in each cluster.

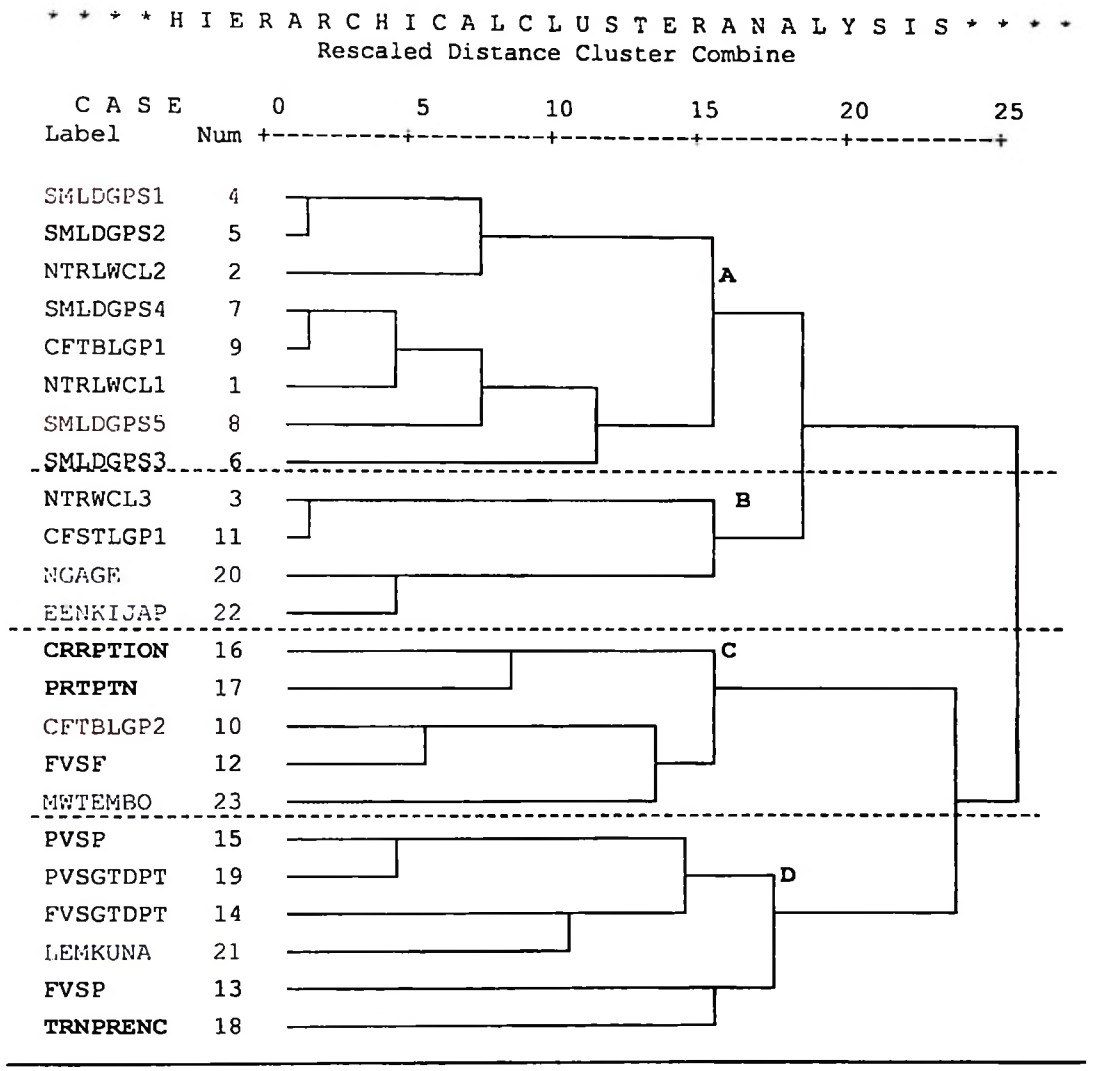

Figure 7: Dendrogram for nature and causes of resource-use conflicts using complete linkage

Nature and cause of resource use conflicts identified by logistic regression
Study villages
Governance variables
---- Cluster boundaries

4.7 Summary

This chapter has presented results of the study on analysis of resource use conflicts between the pastoralists and other stakeholders in Simanjiro District, in Manyara Region. In Chapter Two it has been shown how various authors have tried to shed light on the same subject. Land and water conflicts are caused by three reasons, as it has been shown in this

section of the study. The chapter also presented two types of results. Those gathered from the interview schedule held with household heads in the study area and information gathered by using participatory approaches, particularly FGDs. The findings are summarized in tables and charts based on the objectives of the study in order to provide a logical flow of ideas.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATION

5.1 Conclusions

5.1.1 Nature and causes of resource use conflict

The purpose of this study was to analyse resource use conflict between the pastoralists and other stakeholders. Specifically it aimed at identifying the nature and causes of conflicts between different stakeholders, assess the effects of land and water conflicts on rural population livelihoods, determine steps undertaken by different stakeholders to resolve the conflicts and finally analyse the role of governance in enhancing/ or arresting land and water use conflicts. The study indicates that the nature and causes of conflict in the study area involves both conflicts among livelihood and between livelihood groups. However, farmers conflict over plots; herders' conflict over water for their livestock and farmers and herders' conflict over land were significantly the major predictors on nature and causes of resource use conflicts. Common conflicts are those related to crop damage caused by animals belonging to herdsmen enhanced by establishment of farm plots on cattle routes.

5.1.2 Effects of land and water conflicts

The effects of land and water conflicts as revealed by the study include poor social relationship and mutual understanding between and among different stakeholders and completely lost trust on village leadership. The general argument and the views of both farmers and pastoralists indicate that in the absence of village leadership or non-interference by government officials the villagers are able to settle their disputes amicably using local institutions.

5.1.3 Steps taken to resolve conflicts

The study revealed that the steps undertaken or method used in resolving conflicts depends on the nature and magnitude of the conflict. Where conflict occurred due crop damage by livestock and the offender herdsman admitted his guilt, interpersonal agreement was reached. Compensation of property (crop) damage depended on the severity or extents of the damage caused. Nevertheless, if crop damage was insignificant and a herder showed concern, a verbal warning not to repeat the offence was issued. Steps undertaken to resolve conflict in a situation where the relationship between parties in conflict is not cordial, included employment of external agents, such as village heads, traditional leaders (*Olaigwanani*) among the Maasai and village government. The study also indicates that the most hated mode of conflict resolution is use of the police and taking cases to court. These institutions are therefore rarely used to resolve conflicts in the study area. However, when the conflict is beyond the competence of community leaders', the local government leadership is invited to intervene.

5.1.4 Governance and resource-use conflict

The study generally reveals that though villagers participated on matters affecting their land the level of participation is low. Their participation was manifest only through public meetings to endorse decision already made for them by higher authority. The level of transparency in handling land matters is equally low as evidenced by little knowledge portrayed regarding land allocation procedures. The study also found that there are some malpractices regarding land allocation procedures pointing a finger to corruption.

5.2 Recommendations

5.2.1 Need for policy changes

There is need to introduce policies that will safeguard the interest of the pastoralists Maasai and their land. Pastoralists Land is increasingly being grabbed and pastoralists by immigrants' aided by corrupt leaders. The herder tends to move a way as land is being put into other uses making them to lose access and control of this land, which forms the basis of their economy. Loss of this prime resource implies widening the poverty gap between pastoralists other members of the society.

5.2.2 Land use planning education

Education on utilization of semi-arid areas for pastoralism is important if at all meaningful gain is to be derived from these dry lands. In order to end the conflicts between farmers and pastoralists there is need to construct dams to harvest rainwater. Reliable use of water in the upland will discourage herders to move during the dry season in search of water for their cattle. There is also need to intensify land ownership knowledge among the pastoral community. These will enhance sedentary life and discourage unnecessary migrations.

5.2.3 Investigating corruption

Thorough investigation on land allocation procedures and the complaints lodged by villagers against the leadership having deprived them the right to land ownership is indispensable. The large pieces of land owned by few individuals acquired through corruption should be distributed among the village community irrespective of their ethnic background and area of origin, so that, this land could be put into productive uses other than being held for speculative purposes by a few individuals. This would reduce the number of people without land and this also would help to reduce conflicts. To avoid these

from happening institution mechanism need to be set up to safeguard the right of all stakeholders.

5.2.4 Personal conflict intervention

Since these farmers and migrants have come together in a community setting to enjoy or share many things in common such as mutual association, fulfilling their basic needs and finding meaning in life, there is need to avoid putting an external hand in deepening their conflicts; rather they should be left to use their local institution to address these conflicts.

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APPENDICES

Appendix 1: Definition of variables

Variable	Indicator
i. Background variables.	
1.Ethnicity	Ethnic group to which the household belongs
2.Land alienation	Land set a side from the village for either conservation or commercial agriculture purposes
3.land use type	Different uses to which land is put i.e. wildlife management, pastoralism, farming, hunting blocks etc
ii. Independent variables	
Demographic factors:	
1.Age	Age in years of the household head
2.Sex	Biologically determined sex of the household head
3.Occupation	Means of livelihoods of the household head eg.farming
4.Migration	Depicts whether household head is inhabitant or immigrant
Socio-economic factors	
1.Land ownership	Legal ownership of Land by household acquired through buying, renting etc.
2.Access rights to land	
3.Herd size	Number of livestock owned by the household
4.Obstruction of livestock route	Any barrier that stop livestock to get accessibility to water points or pastures
Environmental factors:	
1.Land degradation	Loss of productive capacity on due to either overstocking or poor farming activities
2.Water catchments management	Refer to management of water sources at the village
3.Land clearing for farming	Opening more virgin land for cultivation
Governance	
1 Lack of transparency	Ambiguity on the process of land allocation to village members
2 Lack of p participation on land issues	Non-involvement of village members on issue of land allocation
3.Corrupt land authorities	Dishonesty and bribery in handling land disputes
The nature of resource use conflicts	
1.No conflict	Situation where no friction among villagers
2.Tensions	Worries existing among parties in conflicts
3.Arguments	Verbal quarrels among parties in conflicts
4.Disagreements	Divergence perspective on what land should be use for
5.Fighting	Fighting among parties in conflicts
6.Violent clashes	Conflicts characterised by loss of life

Appendix 2: Definition of variables in the cluster analysis model

Variable	Definition of variable
NTRLWCL1	Conflicts among same livelihood groups
NTRLWCL2	Conflict between the livelihood groups
NTRLWCL3	Conflict between the state and livelihood groups
SMLDGPS1	Conflict between the state and livelihood groups
SMLDGPS2	Farmers over farm plots disputes
SMLDGPS3	Farmers over boundary disputes
SMLDGPS4	Herders over grazing resources
SMLDGPS5	Herders over water resources
CFTBLGP1	Farmers and herders over water use for livelihood
CFTBLGP2	Farmers and herders over land use for livelihood
CFSTLGP1	Government department
FVSF	Farmers versus farmers
FVSP	Farmers versus pastoralists
FVSGTDPT	Farmers versus government department
PVSP	Pastoralists versus pastoralists
CRRPTION	Dimension of governance corruption
PRTPTN	Dimension of governance participation
TRNPRENC	Dimension of governance transparency
PVSGTDPT	Pastoralists versus government department
NGAGE	Ngage village
LEMKUNA	Lemkuna village
EENKIJAP	Endonyo Enkijape village
MWITEMBO	Msitu wa Tembo village

Appendix 3: Household Questionnaires

TITLE: ANALYSIS OF RESOURCE USE CONFLICTS BETWEEN MAASAI AND OTHER STAKEHOLDERS IN SIMANJIRO DISTRICT

Objectives of the study

1. To identify the nature and causes of conflicts between different stakeholders
2. To assess the effects of land and water conflicts
3. To determine steps undertaken by different stakeholders to resolve the conflicts.
4. To identify the role of governance in land and water use conflicts.

BOTH FARMERS AND PASTORALISTS QUESTIONNAIRE (TO BE COMPLETED BY HOUSEHOLD HEADS)

(Qn 1.) Household head identification particular

	Identification particular	Indicate below in the box provided
1	Date of interview	
2	District	
3	Division	
4	Ward	
5	Village	
6	Place of birth	
7	Ethnic group	
8	How long have you lived in the village	

Farmer's/pastoralist profile

(Qn 2.) Household characteristics

	Sex	Tick	Marital status	Tick	Number of years in school	Tick	Age in years
1.	Male		Single				
2.	Female		Widowed				
3.			Separated				
4.			Divorced				

(Qn 3) What is your ethnic background?

	Ethnic background	1	2	3	4	5	6	7	8	9	Other specify	
1	Tick on the box below											

1. Gogo 2.Rangi 3.Sandawe 4.Mang'ati 5.Maasai 6.Mbulu 7.Chagga 8.Pare 9.Barbaig 10.Other specify.....

(Qn 4) What is your main occupation?

	Occupation of household head	Tick
1	Livestock keeper	
2	Farmer	
3	Both farmer and livestock keeper	
4	Employed civil servant	
5	Livestock trader	
6	Other (specify)	

(Qn 5) Do you own a plot?
Yes [ ] No [ ]

(Qn 6) How many plots do you own?

(Qn 7) .How long have you been cultivating the plot?

(Qn 8). What institutional rights do you have over your farm holding?
a) Have title deeds [ ]
b) Have customary rights [ ]
c) Village protection [ ]
d) No rights [ ]

(Qn 9) Is there traditional land holding?
Yes ( )
No ( )

(Qn 10) if yes explain how it works by
a) Gender----------
b) Age ----------
c) Clan----------
d) accessibility

(Qn 11) How do the rights influence your investments decisions with regard to resource conservation?
a) Expansion of holding [ ]
b) Improving farming methods [ ]
c) Diversification of enterprises [ ]

(Qn 12) How did you acquire your plot?

Plot No	Method of acquisition	Tick
1	Inheritance,	
2	Bought	
3	Lease	
4	Village offer	
5	Clear nature forest	
6	Reverting fallow land	
7	Allocated by community	
8	Other (specify)	

(Qn 13) If land was bought, how much did you pay for it...?

(Qn 14) If rented how you pay per acre...

(Qn 15) If yes (in 5 above) indicate the actual size of your cultivated plots (start with the most important plot)

Plot No	Acreage	Primary crop	Other crops	Under continuing farming	Plot position	Distance
1						
2						
3						
4						
5						
6						

Crops1. Maize 2.Beans 3.Millet, 4.Sorghum 5.Sweet 6.potatoes, 7.Greengrams 8.Cassava Sunflower

Plot position

1.Beside the stream/river 2. Around homestead 3 near grazing lands. 4. others specify

(Qn 16) Is it possible to get land for expanding your farming area?

Yes [ ]
No [ ]

(Qn 17.) Indicate evolution of your cultivated area when you started farming (year).....size..... (Acres) now year 2006 size.....acres)

(Qn 14) How far in kilometres is your plot located far away from the homestead?

(Qn 15). Why is your plot far away from the homestead?

(Qn 16). Is your plot adequate?

Yes [ ]
No [ ]

(Qn 17) If not in (15above) why?

(Qn 18). How much additional land do you need?

(Qn 19) Do you think soil fertility in your farm have changed?

(Qn 20). Could you please state the levels of soil fertility in your farm?

a) Decreased a lot [ ]
b) Little decreased [ ]
c) Remained the same [ ]
d) Increased a lot [ ]
e) I don't know [ ]

(Qn 21) Can you mention the reasons for soil fertility?

(Qn 22). What measures do you use to maintain soil fertility in your farm?

(Qn 23) Have the immigration of other ethnic groups affected the land holdings you previously had traditional rights to you?

(Qn 24) If yes in above, how did you manage the situation?

(Qn 25) Which type of livestock do you own?

Animal production	Number last season		Rearing methods	Objective
Type of livestock	At home			
Cattle				
Cow				
Bulk				
Oxen				
Male calves				
Female calves				
Goats				
Sheep				
Donkey				
Pigs				
Chickens				
Guinean fowl				
Others				

(Qn 26) What type of rearing methods do you use raise you livestock

	Livestock rearing methods	Tick
1	Zero grazing (deep litter for poultry)	
2	Semi-intensive (grazing) or free range for poultry	
3	Extensive /nomadic grazing	

(Qn 27) Which of the following management style do you use to cope with shortage of Pastures during dry seasons?

		Always	Occasional	Never
1.	Distant grazing	[ ]	[ ]	[ ]
2.	More cattle to places where is pastors	[ ]	[ ]	[ ]
3.	Cut pasture during wet season	[ ]	[ ]	[ ]
4.	Sale of stock	[ ]	[ ]	[ ]
5.	Transfer stock to relative aware	[ ]	[ ]	[ ]
6.	From village	[ ]	[ ]	[ ]
7.	Other (specify).....			

(Qn 28) Is the available grazing land adequate? Yes [ ] No [ ]

(Qn 29)If no in above why?

a) Too many livestock [ ]
b) Poor pastures [ ]
c) Encroachment by farmers [ ]
d) Other specify

(Qn30) How do you mange the problem grazing land? e.g accessibility.....

(Qn 31) How do you manage water resources and use by livestock?

(Qn 32) Do you have access to crop residues on field belonging to farmers?

Yes [ ]
No [ ]

(Qn 33) If yes in above how?

a) Free of charge [ ]
b) Purchase from farmers [ ]
c) Exchange with livestock manure [ ]
d) Other (specify)

(Qn 34) Do immigrants' farmers or pastoralists have rights of access to lands for their livelihoods?

Yes [ ]
No [ ]

(Qn 35) How do immigrants' farmers interact with other groups of pastoralists in the village?

(Qn 36) What incentives attracted you to immigrate to this village?

a) Grazing land [ ]
b) Grazing management groups [ ]
c) Farmer groups [ ]
d) Other (specify)

(Qn 37) Are there any restrictions for stocking rates in this village?

(Qn 38) If yes in above what are this institutions for regulating resources use in this village?

(Qn 39) If yes in above mention this institution

a) Customary authority [ ]
b) Farmers groups [ ]
c) Grazing management groups [ ]
d) Formal institution set by government [ ]
e) Mixed institution [ ]

(Qn 40) If yes how?

a) Demarcating grazing lands [ ]
b) Destocking [ ]
c) Restricting grazing rates [ ]
d) Pasture improvement [ ]
e) Establish management agreements between pastoralists and farmers [ ]

(Qn 41) How would you assess the availability of land for crop and livestock production now as compared to the past 10 years?

1. Land availability [ ]
2. Readily available [ ]
3. Same as in the past [ ]
4. Not readily available [ ]

(Qn 42) How much is each of the following a problems to your household

		Magnitude of problem		
	Problem	Not a problems	Some what a problems	A serious problems
1	Land shortage			
2	Land alienation			

(Qn 43) Are you a migrant?
1. Yes [ ]
1. No [ ]

(Qn 44) What are the reasons for moving from traditional home?

(Qn 45) What are reasons for choosing this village for settlement?

	Reasons	Tick
1	Good land for agriculture	
2	Availability of good pasture	
3	Area has few cattle disease	
4	Availably of water	
5	Availability of social services	
6	Forced by government	
7	Other specify	

(Qn 46) Have you ever had conflicts with farmers
Yes ( ) No ( )

(Qn 47) Explain reasons for these conflicts

(Qn 48) Do pastoralists and farmers in this village experience problems with land and water.

(Qn 49) Please would you EXPLAIN these problems and how serious is each of them to you?

(Qn 50) If yes in (49) above what are reasons for land and water shortages in village?

	Reasons for shortage	**Water**	**Land**
1.	Increase in human population		
2.	Immigration of farmers		
3.	Land use conversions		
4.	Increased livestock population		
5.	Shortening rain duration		
6.	Soil fertility and area expansion		
7.	Land alienation		
8.	Other (specify)		

(Qn 51) Would immigration of farmers be of very much concern, moderate concern or no concern to you?

(Qn 52) Explain why you feel so?

(Qn 53). What is the source of water for animals and domestic use?

	Source of water 4 animal and domestic use	Tick
1	Public water tap	
2	Spring	
3	Pond, river, stream	
4	Dam (lambo)	

Nature of resource conflicts

(Qn 54) What nature of conflicts exists over land and water resources in your village?

	Nature of land and water conflicts	
1	Conflicts among same livelihood groups	
2	Farmers conflicts between the livelihoods groups	
3	Conflicts between the state and livelihood groups	

(Qn 55.) Explain nature of conflict that you have experienced (the livelihoods groups that are in conflict with each other in your village)

(A.)Same livelihood groups	Yes	No
Framers over farm plots		
Farmers over boundary disputes		
Herders over grazing resources		
Herders over water resources		
Fair water allocation procedures.		

(B.) Conflicts Between livelihood groups	Yes	No
Farmers and herders over water use for livelihood		
Farmers and herders over land use for livelihood		

(C.)Conflicts Between State and livelihood groups	Yes	No
Government discourses		
Land alienation for commercial agriculture		
Development policies affecting access to land and water		

(Qn56.) How do you describe this Livelihoods conflicts among and between major land and water users in Simanjiro?

Livelihood conflicts	Explain
Framers versus farmers	
Farmers versus pastoralists	
Farmers versus government departments	
Pastoralists versus pastoralists	
Pastoralists versus farmers	
Pastoralists versus government department	
Pastoralists versus large-scale farmers	
Other (specify)	

(Qn 57.) When (season) do these conflicts occur in your village?

	Time in season	Farmers	Why	Pastoralists.	Why
1.	Dry-season				
2.	Everyday				
3.	Wet season				

(Qn 57) What are the reasons leading to land and water conflicts in your village?

	Reasons for conflicts over land and water	Pastoralist	Farmer
1.	Crop damages by livestock		
2.	Farmers disregarding the village boundaries		
3.	Scramble for domestic water		
4.	Damages of livestock limbs and poisoning		
5.	Grazing farmer land disputes		
6.	Livestock theft		
7.	Government officials favouring cultivators		
9.	Pastoralists corrupting government officials		
10.	Excessively large herds of cattle		
11.	Heavy penalties demanded by cultivators for crop damage		
12.	Herders violating boundaries		

(Qn 58) What is the extent of conflicts in your village?

(Violence animosity disagreement tension no conflict)

(Qn 59.) Do you have land shortage in your village?
Yes [ ]
No [ ]

(Qn 60) Do you have water shortage in your village?
Yes [ ]
No [ ]

(Qn 61) What are conflicts resolution interventions?

	Conflicts resolutions	Water	Land
1.	Primary courts		
2.	Wards tribunals		
3.	Villages community committees		
4.	Elders, neighbours and relatives		
5.	Other (specify).....		

(Qn 62.)What is the effectiveness of each of the following intervention?

	Intervention	Very good	Good	Poor	Not help at all
1.	Primary courts				
2.	Wards tribunals				
3.	Villages community committees				
4.	Elders, neighbours and relatives				

(Qn 63.)What conflicts mitigation measures do you propose?

	Measures for mitigation	Pastoralist	Farmer
1.	Separating of grazing and crop areas		
2.	Improvement of water availability		
3.	Education on land use planning		
4.	Fining of herders for damage		
5.	Fair water allocation procedures.		
6.	Dam construction for livestock		
7.	Agreement for sharing resources		

(Qn64) what steps to you have you undertaken to resolve this conflicts?

(Qn65) Who are responsible in undertaking these steps of conflicting management conflict?

(Qn 66.) What is your reaction to conflict if are not resolved?

	Reaction	Farmers	Pastoralists
1.	Complain to high government		
2.	File case in ward council		
3.	File case in court of law		
4.	Use water association leaders		
5.	Give up crop farming /livestock keeping.		
6.	Come to agreement with rival		
7.	Migrate to where can make livelihood		
9.	Reduce acreage for land cultivated/or herd size		

(Qn.67). What are the effects of land and water use conflicts in your community?

(a) Defected relationship between farmers and pastoralists
(b) Lack of trust on village leadership
(c) Reduction in productivity
(d) Insecurity and fear among farmers and pastoralists
(e) Destruction of crops, irrigation canals and killing of livestock's
(f) Death of pastoralists, farmers and other settlers

Governance and conflicts in Simanjiro District

(Qn68) Is land alienation in this village a problem?

Yes [ ]
No [ ]

(Qn 69) What is the purpose of land alienation in your village?

	Purpose	Farmers	Pastoralists
1.	Conservation		
2.	Large scale agriculture		
3.	Small-scale agriculture		
4.	Grazing land		
5.	Hunting blocks		
6.	Speculation purposes		
7.	Other (specify)		

(Qn 70) Who is responsible for land alienation in your village?

	Responsible in land alienation	Farmers	Pastoralists
1.	Village land committees		
2.	Land officer		
3.	Village government		
4.	Other (specify).....		

(Qn. 71) When this process of land alienation is being accomplished, are the village members involved? (If yes go to)

Yes [ ]
No [ ]

(Qn 72) Briefly explain how do you participate on land matters in your village?

(Qn 73) Do you think exclusion of villagers on land matters contribute to conflicts?
Yes [ ]
No [ ]

(Qn74) If yes in above give reasons.....

(Qn 75) Do you think handling land issues with openness could reduce tension between the major land users in your village?
Yes [ ]
No [ ]

(Qn.76)Why do you think transparency will help solve land conflicts?