

**EFFECTS OF SUB-DIVISION OF GROUP  
RANCHES ON SUSTAINABLE FOOD SECURITY  
IN MASHURU DIVISION, KAJIADO DISTRICT**

**By**

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## DECLARATION

This Thesis is my original work and has not been presented for a degree in any other University.

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This Thesis has been submitted for examination with my approval as a University Supervisor.

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Date: 10/5/2007

Prof. Collette A. Suda

## **DEDICATION**

This work is dedicated to my wife Grace Wanjiku Kinyanjui, my children Mary Wanjiku, Elispha Kabura, Eunice Wangari and Alice Njoki; who have always been a source of inspiration and support throughout this study.

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## ABSTRACT

The research was carried out to investigate the effects of subdivision of group ranches on sustainable food security in Mashuru Division of Kajiado District. Investigations determined how the subdivision of the group ranches has affected livestock production. The management of the new individual ranches with no skill in the new farming system will affect productivity and hence affect food availability. Group approach to the utilization of communal infrastructures is not there any more and most of them will not be serviceable in the near future. The study was guided by the cultural ecology theory. Cultural ecology will assist in the understanding of the adjustment or relationship of culture to the natural environment. This includes looking at the features of the environment itself and the cultural arrangements by which the environment is exploited. The environment will not change and therefore the new developments will have to be adjusted.

In the 1960s, the government introduced the group ranch concept to replace pastoralism with the intention of commercializing the pastoralists to increase income and provide essential services. 13 group ranches were formed which now comprise Mashuru Division. Problems started almost as soon as these group ranches were formed. In the 1970s and 1980s, the members opted for individual land tenure. The government allowed the subdivision after fulfillment of some conditions. By the time the research was being conducted, all the ranches had been subdivided, some officially while others were preoccupied in the process of formalizing the subdivision except Kiboko which is still a group ranch. The qualitative research method was used and the techniques selected to

carry out this research included direct observation, interviewing key informants and focus group discussions.

Results of the study showed that the subdivision will affect food security. This is indicated by the size of land parcels and the change in the size and type of herds. After subdivision, some parcels have already been subdivided further for purpose of selling. Change in land use which included cultivation was coming in when cultivation of crops was still foreign to the Maasai and the environmental degradation was not being addressed considering the fragile nature of the semi-arid regions. These problems compounded by the harsh climatic and political environment has made the subdivision of the former group ranches affect sustainable food security. It is only the intervention from the government and other donors through provision of the necessary resources that can make the change in land use overcome the food security problem. Food security would be achieved not only through food production but also having the power to purchase food.

# TABLE OF CONTENTS

CHAPTER ONE . . . . .	1
INTRODUCTION . . . . .	1
1.0. Background information . . . . .	1
1.1. Statement of the problem . . . . .	8
1.2. Objectives . . . . .	9
1.2.1. Overall objective . . . . .	9
1.2.2. Specific objectives . . . . .	9
1.3. Justification of the study . . . . .	10
1.4. Scope and limitations . . . . .	12
CHAPTER TWO . . . . .	14
LITERATURE REVIEW AND THEORETICAL FRAMEWORK . . . . .	14
2.0 LITERATURE REVIEW . . . . .	14
2.0.1 Culture and the origin of the Maasai . . . . .	14
2.0.2 Kajiado Group Ranches: Creation, Performance and Subdivision . . . . .	15
2.0.3. Food security . . . . .	22
2.1 THEORETICAL FRAMEWORK . . . . .	23
2.2. WORKING HYPOTHESES . . . . .	27
2.3. OPERATIONLISATION OF VARIABLES . . . . .	27



CHAPTER THREE	29
METHODOLOGY	29
3.0. STUDY AREA	29
3.0.1. Introduction	29
3.0.2. Location and characteristics of Mashuru Division of Kajiado District	29
3.0.3. Demography and Settlement	32
3.0.4. Climate	33
3.1. DATA COLLECTION	34
3.1.1. Secondary data	34
3.1.2. Primary data	34
3.1.3. Study Design	34
3.1.4. Sampling and sample size	36
3.1.5. Data Collection Methods	38
3.2. Data analysis	42
 CHAPTER FOUR	 43
DISCUSSION OF THE RESEARCH FINDINGS	43
4.0. DIRECT OBSERVATION	43
4.0.1. General	43
4.0.2 Infrastructure	43
4.0.3. Water Resources	44

4.0.4. Farming Systems . . . . .	48
4.0.5. Marketing Of Livestock . . . . .	55
4.0.6. Non-Farming Economic Activities . . . . .	58
4.1. KEY INFORMANT INTERVIEWS . . . . .	59
4.2. FOCUS GROUP DISCUSSIONS . . . . .	65
CHAPTER FIVE . . . . .	81
THE ROLE OF THE PRIVATE SECTOR IN SUSTAINABLE FOOD SECURITY . . . . .	81
5.0. Introduction . . . . .	81
5.1. Men’s Group Activities . . . . .	83
5.2. Women’s Group Activities . . . . .	84
5.3. Youth’s Group Activities . . . . .	85
5.4. NGOs and Church Organizations assisting in Mashuru Division . .	86
5.4.1. Methodist Church . . . . .	87
5.4.2. Catholic Mission . . . . .	87
5.4.3. Free Pentecostal Fellowship in Kenya . . . . .	88
5.4.4. World Vision International . . . . .	88
5.4.5. Compassion International . . . . .	88
5.4.6. New Life Mission . . . . .	88

CHAPTER SIX . . . . . 90

SUMMARY, CONCLUSIONS AND RECOMMENDATION . . . . . 90

    6.0. Summary . . . . . 90

    6.1. Conclusions . . . . . 92

    6.2. Recommendations . . . . . 97

Bibliography . . . . . 100

Appendices . . . . . 107

    Appendix 1: Leading Questions for Key Informant Interviews . . . . . 107

    Appendix 2: Leading Questions in Focus Group Discussions . . . . . 108

# CHAPTER ONE

## INTRODUCTION

### 1.0. Background information

The sub-division of group ranches into small individual ranches is the most hotly debated issue in Kajiado District today. The process of individualization of ranches started in the early 1950s. Such a development had worried the colonial government who thought the opportunity would make the rich, influential and educated Maasai to control most land parcels at the expense of the majority of Maasai people. Though the administration favoured individual freehold land tenure, most Maasai elders were opposed to this, as the individual ranches would be small and not viable in the semi-arid environment.

Maasailand had been a closed area for foreigners but after Kenya gained independence in 1963, the Maasai treaties which had declared the area a closed District were removed. The Maasai in favour of individual ranches thought individual ranches at the fringes of Maasailand were necessary to stop illegal intrusion by their neighbours. Areas like Ngong, which had been suitable for dry season grazing were given to individuals. The new owners then sub-divided the ranches into small parcels and sold them to non-maasai who were interested in crop farming while others bought the land for speculation. These arable farmers fenced their land units to protect their crops from Maasai livestock and therefore not available for dry season grazing. The fear of individualization of land was confirmed and became an issue of major concern in Kajiado District. If the whole of Maasailand was divided between Maasai adult males, each person

would get only 200 acres, which was not considered viable for ranching. With these non-viable parcels, the risk of the owners selling them to people from other districts interested in other forms of development was high. Group ranch concept of land ownership was therefore the best alternative.

The birth of the group ranch concept could be between the time the East African Commission report in 1955 favouring individual land tenure and the Lawrance Mission of 1965 which favoured the establishment of large ranches with ownership vested on a group. Starting in 1963 up till 1967 the Range Management Division which was a registered group formed to establish group ranches in semi-arid regions laid the groundwork that was to develop group ranches (Grandin, 1981). Development capital loans were to be provided for infrastructures and other developments such as water provision, veterinary services, improved livestock breeds, dips, firebreaks and other packages. The government was of the opinion that it would be easier to control stocking rates, prevention of spread of livestock diseases and considerably ease provision of basic services like education, health and security.

A pilot group ranch was started in south Kaputiei location of Mashuru Division. 30 families were grouped together in a ranch 8,926 hectares in size called Poka. Loan was provided for infrastructure, purchase of breeding stock and employing a qualified manager. According to John Halderman (1972) who was the first manager, the ranch was a success, though rainfall was favourable and contributed to the success. The World Bank gave the development financial assistance. Other group ranches followed and in 1970 all the group ranches in Mashuru Division had started.

It was argued that group ownership would be more suitable in dealing with the fragile conditions of the Maasai land. Formation of the group ranches would also control the increase in the number of privately owned ranches. Group ranch concept was proposed by outsiders and lacked a firm traditional, sociological as well as an ecological basis. Organization, jurisdiction and economic problems started almost immediately after the formation of group ranches.

The group ranches effectively controlled the allocation of communal land to individuals. Secondly, the group ranches initiated livestock management techniques and construction of infrastructure such as boreholes, cattle dips, pan dams and troughs. Group ranches also stimulated the building of schools, urban and health centers.

However, these accomplishments were slowed down by many problems that developed during the implementation of the projects. Delays in project implementation, difficulty in loan repayment thus affecting farther investments, continuing trespassing of group ranch boundaries, mismanagement of communal infrastructures, refusal to destock ranches and failure to commercialize the ranchers were some of the problems that hampered success of the group ranches. The outcome of these problems and the resulting frustrations was a growing wish among the Maasai for subdivision of the group ranches into individually owned parcels.

Group ranch boundaries were established through Maasai leaders and the Range Management Division in consultation with local residents. The Maasai were free to choose to become members of any group ranch. Group ranches were therefore primarily started to control selling of land since no one person could sell group land. Secondly, it would

be easier to improve livestock production through improved management. Water and veterinary services would be possible to provide. According to Pasha (1986), Timoi and Kuluo (1990) group ranch development has directly been responsible for the establishment of schools, shops and health centers. Wildlife has also not been affected as the group ranches allowed them to roam freely.

The government's goal was to change the traditional pastoral system into a commercially oriented production system. The slow release of loan funds and poor disbursement of loans was problematic in the late 1970s and early 1980s. Droughts especially in 1984 made ranches suffer huge losses making disbursement of loans impossible. Agricultural Finance Co-operation, which was the facilitator of the World Bank funds, threatened to auction ranches to repay the loans. Political intervention saved the situation.

During periods of drought, the ranchers ignored boundaries of group ranches and moved out in search of rangeland for the animals to survive. Others who ignored conservation invaded ranches that conserved some areas for dry season grazing. The group ranch concept was difficult to enforce as some members of the community failed to follow rational grazing within boundaries of each group ranch. Group ranches were not transforming Maasai pastoralism from traditional to commercial herding (Galaty, 1978) since most of them preferred free range grazing and still degraded land through overgrazing because they did not accept destocking. The marketing structure was not improved and the prices remained low. With these problems and the resultant frustrations, many group ranches wanted sub-division of the ranches. Again Poka ranch which was

the pilot group ranch took the lead. Would the sub-division maintain food security?

Food security in Maasailand, like other pastoral communities, revolves around livestock. Improved production of livestock guarantees food availability since sale of livestock gives the power to acquire food. After subdivision of the group ranches, ways have to be established to take care of the food security problem. As stated earlier, in the 1970s, it was envisaged that if all adult male Maasai got an equal share of the total Maasailand, each could get an average of 200 acres (Rutten, 1992). Most Maasailand is in zone V, which is marginally suitable. The potential of this land is low and one livestock unit would require several acres. From the 1970s to the present, the population of the Maasai has increased and the size of land parcel for each adult male has greatly reduced and that means reduced production (Oyaya, 1992). Many ranches have already been sub-divided while others are in the process of being sub-divided. The prevailing trends would not be easily reversed.

As late as the 1930s the Maasai were characterized by the Kenya Land Commission as being probably the most wealthy tribe in East Africa, both in land and the stock they were able to sustain (Rutten, 1992). The Maasai households of Kajiado and Narok, most of them pastoralists, had the highest average net monthly income. Each of the animals kept by the pastoralists has some production characteristics. Goats are browsers though sometimes they graze while cattle and sheep are grazers. Each of the species have different water requirement, rate of survival and reproduction. Strategies that were used in the past considered these facts so that animals were kept where they would survive. In the dry season, goats which are browsers would be left behind to browse on



herbs and shrubs when the other animals moved away in such of pasture. A big percentage of cattle in Mashuru are cows. The male offsprings are sold as young steers and a few as mature steers. The main aim of having more cows is to increase milk production for subsistence. When improving the local cattle breeds, one of the main aims is to increase milk production in addition to increasing weight when selling the animals. Small stock is the main supplier of meat for the household or sold to buy foodstuffs or to generate income for other purposes.

Selling of milk has gained momentum only recently and mostly for the ranches close to urban centers. In the past only a few households had surplus milk for sale. Milk has therefore been mainly produced for household's consumption. The rise of many settlements and schools have deprived the people their sustainable food supply. During the time the Maasai had large herds, milk was plenty and in addition drinking of blood was still going on. Tastes and preferences have caused the change of the Maasai diet.

Now that the size of herds per household has reduced, the amount of milk produced has reduced. Consumption of blood is considered an outdated practice especially for the younger generation. Recovery of large herds after a disaster like disease or drought has been greatly affected since land is scarce after subdivision. Food security was sustainable in the past when land was not a limiting factor and large herds were the order. All the livestock products were consumed by the pastoralists themselves. The nutritious diet of milk, blood and meat that was sustainable has been replaced to a large extent by farmed crop products. The livestock economy was what was understood then. With the money economy replacing the livestock economy, ways of ensuring sustainable food

security have to be investigated and adopted.

Food security though interpreted in many ways, is defined as access by all people, at all times, to enough food for an active, healthy life. Its essential elements are availability of food and the ability to acquire it. People of Mashuru like other pastoralist communities have become increasingly dependent on non-pastoral products in their daily food intake. This dependence increases during drought and famines when pastoral yields decline (Odegi-Awuondo, 1990). The Maasai rely on a whole range of consumer products as part of their diet like maize meal which they call posho, sugar, cooking fat, beans, salt, wheat flour and rice. Dependence on traders from outside the Division and the cooperation with the state have all been strategies aimed at making better use of the non-pastoral sector in coping with drought and famine.

Purchasing essential commodities is the order of the day in all pastoral communities. The cost of most commodities is high because of communication problems into the interior of the Mashuru Division. Due to perennial drought conditions, a number of strategies were normally developed in the life styles of the pastoralist in what could be considered as adaptation to the environment. There were areas for wet season grazing and areas for dry season grazing. Since development of controlled grazing will overcome these traditional grazing strategies, a way of coping with the new development has to be introduced. Changes that have taken place are irreversible considering the resultant developments.

## 1.1. Statement of the problem

The Maasai being pastoralists make their living by keeping livestock. Pastoralism is a form of extensive grazing which makes use of land by keeping animals without an overall improvement of the vegetation being undertaken by reseedling, fertilizing or allowing for improvements like local feedlots or water supplies (Rutten, 1992). Subdivision of group ranches into individual parcels means that pastoralism will change to ranching. Ranching refers to a situation whereby the herds are kept on a specific, sometimes fenced area in which water resources are controlled, herds are controlled in size, age and sex, parasites and predators are controlled, the rangeland is managed and the necessary infrastructures like fire breaks are provided (GoK, 1980).

The traditional Maasai pastoralism has been nomadic. Nomadism refers to those cases in which all household members are constantly on the move during the dry season. During the wet season the members and their livestock regroup on the wet season pastures whenever there is abundance of grazing for all the household's livestock. This is a method of utilizing the scarce available resources optimally. The Maasai nomadism has been moderate in that they were becoming more sedentary and organized along the lines of group ranches. These have, however, been dissolved or are in the process of being dissolved resulting in the individualization of land ownership.

When the subdivision of the group ranches is finally effected, the land parcels will be small in relation to the productivity of the land. What used to be dry season grazing areas and wet season grazing areas will be individualized thus ending Maasai pastoralism that could guarantee continuous livestock production. With the end of pastoralism, all

people will be converted to ranchers and gradually to mixed farming without any skills in the new farming systems. Poka which was the pilot ranch had a qualified manager who made it succeed. Other ranches were to copy the developments in Poka without any formal training or be given a qualified manager to start the ranches. The infrastructure like boreholes, water pans, dips, and also controlling livestock diseases in the past were under community management. Now that the group approach to the running of these infrastructures had stopped, with individualization of ranches, services they provide may not be guaranteed.

## **1.2. Objectives**

### **1.2.1. Overall objective**

The overall objective of the study is to investigate the effects of subdivision of group ranches on sustainable food security in Mashuru Division of Kajiado District.

### **1.2.2. Specific objectives**

1. To determine how the subdivision of group ranches has affected livestock production thus directly affecting sustainable food security.
2. To determine whether lack of skills in the management of individual ranches will affect income and thus the availability of food.
3. To determine how the communal infrastructure is used and the alternatives that could be exploited to ensure sustainable food security.

The pertinent questions the research seeks to answer are as follows:

1. Will a subdivision continue the normal Maasai pastoralism for a sustainable food

security?

2. What will be the effects of overgrazing on the land should the Maasai retain their large herds of cattle or what will happen when the maasai pastoralism gradually converted to mixed farming without any skills in the new farming system?
3. What utility roles shall communal infrastructures like boreholes, water pans, dips etc. play in the improved management and disease control among the more independent Maasai?

It is true to the objectives of the researcher that very pertinent issues must reach at the real situation obtaining at the Mashuru Division of Kajiado District as a sample study. The researcher must report how the subdivision has affected the livestock production of the local people and thus directly polarized their food security. This way the research was to study the agricultural skills of the people and relate them to their food availability and economic standing. Finally the research has offered suggestions on ways of improving the divided ranches for a better growth and development in the future.

### **1.3. Justification of the study**

Many communities in the semi-arid and arid regions of Kenya have depended on food donation due to lack of a sustainable method of securing their own food. Livelihood of the communities living in these regions is based on pastoralism. The adage goes that pastoral communities inhabiting arid and semi-arid lands have always sold their livestock to purchase food. The sale of livestock has been more persistent in times of drought when the pastoralists directly reduce their communal purchasing power. As the livestock

numbers reduce, their power to purchase food is reduced and therefore making the people look for food aid to fill the gap. Livestock numbers have reduced due to overgrazing that has degraded most rangelands, the infrastructure has run down due to the individualization of land in the former group ranches, lack of proper management skills of the fragmented rangelands, and unfavourable weather.

When all group ranches are subdivided, land parcels will average about 200 acres. This size of land is not viable for ranching in the arid and semi-arid regions. Since food security in the past has revolved around livestock production and their products like meat, milk and blood, any factors that affect livestock need to be studied. Such a study reveals the problems, possible outcome and solutions. The aim of the government in the 1960s and 1970s when group ranches were formed was to avoid fragmentation of the rangelands to safeguard livestock production. The running of the group ranches had many problems which forced members to favour subdivision so that each individual manage their parcels. Ngong Division which had many individual ranches from the beginning has clearly shown that subdivision may not be a good option. Most land owners in Ngong have subdivided the land and sold to willing buyers who have changed the landuse to arable farming and settlement. Some of these former land owners are now landless and have to turn to employment.

This study is a research on subdivision of the former group ranches in Mashuru Division and how these changes will affect food security. It will assist the Government administrators and donors in formulating policies and strategies for ensuring sustainable food security.

#### **1.4. Scope and limitations**

The research is limited to the Division of Mashuru, one of the five divisions of Kajiado District. The other divisions are Central, Ngong, Loitokitok and Magadi. Mashuru Division was chosen for the study because it was a Kenya Agricultural Research Institute's mandate area and the Kenya Soil Survey, one its institutes, who are sponsors of the study were undertaking other studies in the division in collaboration with different stakeholders in Kajiado District. Mashuru Division was established in 1989. It has seven locations and several sublocations. The division is located to the east bordering with Makueni District; with Loitokitok Division to the south; Machakos District and Ngong Division to the north and Central Division to the west (see figure 1). It more or less runs along the railway line and along the main highway from Nairobi to Mombasa.

The Nairobi-Mombasa road is the only tarmac road. The road from Emali to Loitokitok was all weather but after the el nino rains, most sections were washed away or damaged and unless proper repairs are done, it may not be all weather again. The other roads are seasonal and are not motorable in the wet season. For the research study to be successful, a vehicle adaptable to rough terrain and wet conditions was necessary. To get to most places in the division was time consuming and costly.

On the financial side, a facilitator was recruited and paid to interpret and explain the intentions of the field work to the community. In addition, there are no hotels in the local urban centers and all the field work was done from Sultan Hamud, Emali and Masimba.

The very nature of anthropological research involves living with the people,

learning the local language, sharing their life styles and frequently befriending them for the research study to be successful. Learning the language would overcome the disadvantages and biases that arise in the process of interpretation while using a facilitator. Residing with the community and participating in their daily events would be best for this study to avoid suspicion. A stranger coming into a community and trying to get information may be viewed like an agent who is out to gain knowledge that can be used to harm them. However, the time and funds allocated for the research was not enough. The financial commitment by the donor did not include the basic research on the community before embarking on the research subject. Basic research includes gaining knowledge of the community and the local cultures as well as ecology while being part of the community under study.



## CHAPTER TWO

### LITERATURE REVIEW AND THEORETICAL FRAMEWORK

#### 2.0 LITERATURE REVIEW

##### 2.0.1 Culture and the origin of the Maasai

There are many theories about the origin of the Maasai. One of the theories states that the Maasai are probably one of the lost tribes of Israel (Merker, 1904). He says due to famine resulting from overpopulation which outstripped the agricultural productivity, individual semitic tribes moved away from the Arabian Peninsula over a period of thousands of years towards either Asia or Africa. This theory has been contested (Mol, 1980).

Archaeological excavations have revealed evidence of livestock domestication in various parts of Maasailand before the beginning of AD. The Chinese have supported this fact in their records which indicate existence of milk drinking pastoralists in the interior of East Africa as early as 130 BC to AD 838 of whom the Maasai may be descendants (Jacobs, 1975). However, the oral traditions point the origin of the Maasai to the Uganda-Sudan border (Mol, 1980).

According to Jacobs (1975) until the early 1960s the majority of these pastoral Maasai not only rejected the non - livestock based alternative modes of subsistence available to them but they also possessed strong prohibitions against the eating of agricultural and other non - pastoral foods. Their diet is said to have been based solely on milk, meat, blood and some naturally growing fruits (Rutten, 1992). The Maasai have since slowly changed their diet and include cultivated products like cereals and vegetables

(Lawren, 1968).

Due to wars, livestock diseases, disparity in power between pastoral Maasai and the neighboring groups, Kamba, Kikuyu and Kalenjins, the Maasai were moved from their grazing areas southward. The developments in Europe were also influencing Africa as Europeans scrambled for African colonies to supply raw materials for their industries. As Europeans were making inroad in the 1880s, several livestock disasters like the great rinderpest epidemic from Ethiopia wiped out most Maasai livestock and many Maasai people perished of starvation (Waller, 1988). During this time many Maasai were absorbed into Kikuyu, Meru, Taveta and Chagga (Waller, 1976). Areas occupied by the Maasai were therefore easily targeted by the Europeans who assumed them to be unoccupied.

After building of the railway which was expensive, the British looked for settlers outside the country to buy land so that they could be able to recover the money. Settlers were allowed to go and look for attractive land regardless of the land available to Africans (Sorrenson, 1968). By 1903, much of Maasai land had been taken for ranching. In 1928, native land reserves were established and Kajiado district was one of these native areas then called Maasai Extra Province (Sorrenson, 1965).

## **2.0.2 Kajiado Group Ranches: Creation, Performance and Subdivision**

### **Creation**

Pressure on ranging land in Kajiado District shows itself mainly by loss of pastures to other land use activities such as cultivation and national parks and through a process of privatization and individualization of land use and ownership (Campbell 1979a, 1981a,

1986; Muranja 1973/74; UNDP/FAO 1978; Western 1982; Ecosystems 1982; Galaty 1978, 1980, 1981). It was time to search for a solution to the pressure. According to Davis (1970) the birth of the group ranch concept should be placed in the time between the East African Commission of 1955 favoring individual tenure in the whole of Kenya and the Lawrence Mission in 1965-66 preferring the establishment and registration of group ranches in the semi - arid regions. Brown's (1963) report entitled "Development of Semi - arid areas of Kenya" is an important marker in the start of land tenure changes in Maasai land. Range Management Division held meetings throughout Kaputiei area to inform people of the group ranch concept. This concept involved the setting aside of a certain piece of land, communally owned by a group of people recorded and registered as the legal owners through membership of the particular ranch. Livestock movements would be restricted within the boundaries and outsiders not allowed to enter with their stock. Development capital loans were to be provided for infrastructural development such as water facilities, dips, and firebreaks. Working capital was also provided to purchase young animals for fattening and afterwards sold on the Nairobi meat market to repay the loans. The government was in favor of foundation of group ranches so that stocking could be controlled easily to avoid rangeland degradation, the pastoralists would commercialize, prevention and control of livestock diseases and provision of basic needs such as education, health and other infrastructural facilities would be achieved (Tobiko 1989).

In Mashuru division, the following group ranches were formed: Kiboko, Olkarkar, Merueshi, Mbuko, Mbilini, Poka, Nkama, Arroi, Imaroro/Mashuru, Erankau, Ilmamen, Emarti and Osilalei (see figure 2). Some small pockets were allowed for individual

ranches. Not all Maasai people were initially in favor of group ranches (Njoka, 1979). The actual establishment of group ranch followed a phased structure that started with the declaration of an "Adjudication Area". The District Land Adjudication Officer supervised the exercise. Demarcation, recording and survey officers were appointed to assist in the technical process of this exercise (Galaty, 1978). Legal authority concerning group ranches was based upon the Land Adjudication Act 1968 and Land Act 1968 (Wanjala 1990).

Besides the Registrar of Group Representatives within the Ministry of Lands, the Kenya Livestock Development Project meant the involvement of a whole range of other government agencies: the Range Management Division (RMD), Agricultural Finance Corporation (AFC), Water Development Division, Veterinary department and the Livestock Marketing division (LMD). UNDP/FAO assisted in preparing detailed studies of range resources, hydrology, livestock and wildlife populations.

In 1964, a pilot Poka group ranch was started. With the management of an experienced manager, Poka was a success compared with the traditional Maasai way of herding (Halderman, 1972).

### **Performance**

A pilot Poka group ranch located in South East of Sultan Hamud was started in 1964. The ranch was viewed as a test case for the group ranch concept to be extended to the rest of Maasai land. Some 30 families were grouped together in an ecologically favorable ranch 8,926 hectares and given grants for water and dip facilities. A qualified manager was also provided. With this assistance Poka group ranch was successful. The development of the ranches was to be done in phases (Njoka, 1979).

Group ranch boundaries were tentatively established after discussion with the Maasai section leaders and the Range Management staff in consultation with local residents. In addition to Poka, 14 group ranches in Kaputiei area were created. The Maasai were free to choose to become members of any group ranch. They, in general, did not have a clear idea of all consequences of the group ranch concept. In order not to cut off any Maasai from their culturally defined right to residence and grazing in their section, great efforts were made to register the Maasai (Bekure et al, 1987). Phase II continued in the establishment of more group ranches in the rest of Kajiado District.

As Pasha (1986) concludes, the fact that most of the land was adjudicated to groups who could not sell, land subdivision had been controlled. The majority of the facilities available were not the result of the loans provided in the development of the group ranches. According to Dietz et al (1986) only 15 boreholes, 15 tanks, 15 troughs and 16 dips were constructed during Kenya Livestock Development Project phase I. Phase II added 4 tanks, 5 troughs and 4 dips only. Other donors also provided funds for construction of boreholes and other facilities in group ranches. Some of these became the property of the group ranches themselves. In 1988, there were 45 boreholes (11 of these were out of the study area) in all belonging to the group ranches of which 23 were operational.

According to some authors (Pasha, 1986; Timoi & Kulo, 1990), group ranch development has directly or indirectly been responsible for the establishment of schools, market and health centers. They have also allowed wildlife to roam freely than if the ranches were individually owned, they would be fenced and closed to wildlife. The

Lawrence mission report provided the official basis upon which group ranches were established (Lawrence,1966).

Failure to perform well was blamed on both the government for not disbursing funds from World Bank through AFC quickly and the ranches not meeting their repayment of loans schedule. The group ranches were designed by the government to realize certain objectives. These objectives were:

- 1) Improve the earning capacity of pastoralists
- 2) Increase productivity of pastoral lands through increased government support
- 3) Overcome landlessness among pastoralists
- 4) To stem the environmental degradation brought about by overstocking and overgrazing on communal lands (Munei,1991).

Failure of the group ranches may also be blamed on lack of consultation with pastoralists and imposition of a complex management (Coldham, 1982). However, there was no coercion and Maasai pastoralists were receptive to the idea of group ranching. The Maasai must have been happy, the government was at least paying some attention to their development.

### **The failure and quest for subdivision of group ranches**

As early as 1977, the World Bank voiced its misgivings about the ability of group ranching to realize the objectives set (Munei, 1991). The objectives of destocking and improved market offtake were not realized. Therefore, the objective of preventing environmental degradation through reduction in overstocking was not realized (Meadows and White, 1981). There was no clear understanding that landlessness had been contained

by the idea of group ranches (Doherty, 1979). It seems fundamental failure of group ranching lay in lack of material benefits for the individual group ranch member. After the withdrawal of the World Bank funding, very little development was carried on in many group ranches and even this never trickled to the individual (Munei, 1991). These shortcomings increased the desire for subdivision.

Poka which was the pilot group ranch was also the first to press for subdivision. In 1981, the quest for subdivision by Poka was reluctantly accepted by the department of Range Management and this went on smoothly. More and more group ranches voiced their desire for subdivision. This forced the government to issue a response in terms of a policy statement regarding subdivision of group ranches in general. The government was reluctant to permit subdivision due to some arguments. One of these arguments is the viability of ranching both ecologically and economically. Creation of small ranches would lead to environmental degradation. Economically also, investing heavily in a small ranch may not pay. However those who favored subdivision argued that members would get tangible material benefits. It was felt that individual management of ranches would be superior than for group. Again acquiring of titles would allow individuals to obtain loans for their ranch development.

Since 1984, most group ranches have been preoccupied with the issue of how to subdivide their group ranches rather than with whether to subdivide. For the government to allow subdivision, the group ranches had to comply with some conditions:-

- 1) Repaying any loan owed to the Agricultural Finance Corporation.
- 2) Resolve the issue of registration of grown up young men

- 3) Convening of a general meeting to dissolve the group ranch and
- 4) Obtaining official permission from registrar of group ranches for dissolution of the group ranch (Government of Kenya , 1983).

Implementation of subdivision was delayed by the first two conditions: repaying all loans owed to AFC and registration of all mature young men. Politics and corruption also crept in to make the issue more complicated (Munei, 1991)

### **Consequences of subdivision**

Subdivision of the original group ranches does not end there. The resultant parcels after subdivision are further subdivided by the owners into yet smaller sub-parcels. If these already smaller parcels from division of group ranches are further subdivided into smaller parcels, the issue of viability becomes critical. However, when the subdivision is done for management purposes so that the owner can charge one part of the farm to get loan funds, the subdivision would be sensible, but when loan fund is not utilized well, the same charged parcel is sold ending up in other people's hands.

The most obvious economic effect of subdivision of group ranches is a change in land use. Considering that 75% of Mashuru is marginal land, change of land use may not be possible in the short run. One economic implication of subdivision of group ranch would be capital improvement. This would be in the form of improved settlement and ranch facilities. Other areas that would be affected by subdivision are pasture and labour. Proper use of natural pasture input into livestock production requires rational grazing to allow regeneration of natural pasture (Morrison, 1958; Hennings, 1961). Economic effect of subdivision on labor is increase in hired labour especially for herding.



An increase in the cost of inputs such as labour, pasture and water plus other facilities makes small scale ranching unprofitable. The smaller the ranches the more the effect of inputs is felt. Many facilities will not be shared any more as people acquire their own. Selling of land generates income in the short run. The sellers of land though they have made some income, gains in the short run have permanently undermined their future income generating capacity. Other quite important consequences of the subdivision of the group ranches are on the environment. Rangelands are very fragile and have a tendency of degrading fast with intensification of farming. This is why the government did not favour subdivision of group ranches in arid and semi arid lands (GoK, 1980). Individuals on group ranches had no incentive to prevent degradation of pasture through overstocking (Hardin 1968; Hopcraft 1981). It was often thought that individual ranching could solve the overstocking problem but to realize quick returns from ranching, deliberate overstocking is done (Davis 1970). As stated earlier subdivision affects wildlife as owners fence their parcels. Subdivision breaks the social ties since there is very little sharing of facilities. As other non - Maasai immigrants infiltrate during the sale of land, ethnic conflicts start. As the heads of families subdivide and sell land undesirable social consequences surface.

### **2.0.3. Food security**

Food security is about people, their ability to produce food for themselves, for their neighbours and for the national and global markets. It is about ensuring that all people have economic and physical access to food and that food can be utilized to ensure adequate nutrition (FAO, 1996; FAO, 1995). Sufficient food production alone will not

guarantee food security, however, unless action is taken to ensure access to food by all people. While ensuring food security, productive capacity, sustainable management of natural resources and protection of the environment have to be achieved (FAO,1995).

Increasing resource scarcity and environmental degradation affect food security. Food security for instance is very much dependent on water supply, and water resources are frequently an underlying cause of disputes, especially when they are scarce. Population growth is probably the single most important global trend influencing food security. Other important factors that influence food security are climatic change, poverty, environmental degradation, management of resources and diseases (FAO,1995). The majority of the low income countries depends on agriculture and there is no clear-cut distinction between demand and supply of food. Their economic growth depends on agricultural growth. Production of more food than is required is therefore the major problem (IIED, 1997; Population Bulletin Vol. 53, No. 1, 1998; Daily Nation, September 11, 1998).

The Maasai economy should diversify through engaging in other sources of income like formal employment in the public and private sector, start cultivation of food and cash crops especially through irrigation, involved in business enterprises and investment of the income generated through the sale of livestock (Metson, 1974; ASAL, 1989 and ASAL progress reports).

## **2.1 THEORETICAL FRAMEWORK**

The study is guided by the Cultural Ecology Theory. Cultural Ecology is the study of the adjustment or relationship of culture to the natural environment and two distinct orders of phenomena are involved. The features of the environment itself and the

cultural arrangements by which the environment is exploited, including technology and economic organization (Hatch, 1973; Ember and Ember 1990). The theory is the works of Julian Steward, born in 1902 at Washington D.C.. He says both sets of phenomena must be taken into account in a cultural ecological analysis.

Although Steward regarded ecology as an important causal factor behind social institutions, he was clear that not all features of culture can be explained in terms of ecological adaptation. He distinguished between the cultural core "the constellation of features which are most closely related to subsistence activities and economic arrangements", such as political organization and in some cases religious patterns; and the secondary features of culture, those that are not strongly tied to the core and which are determined to a greater extent by purely cultural historical factors. This distinction parallels that which Kroeber made between reality and value culture. Steward referred to his approach as a multilineal rather than a unilineal theory of evolution, for he believed that cultures have evolved along a variety of different lines. He noted that the ecological approach is less applicable to complex societies than to primitive ones because a society with a sophisticated technology enjoys greater freedom from environmental limitations and hence a wider range of latitude.

The Maasai pastoralists must adjust not only to climate, soils, and the like, but also to the legal, political and economic systems of the larger society as well. The environmental conditions which circumscribe a culture provide the framework of reference for making an integrational analysis, and explanation consistent with showing the effects of adaptation on the socio-cultural whole.

Culture therefore is the enabling device through which humans begin by adapting and end up controlling the environment. The fragility of the ecology as well as the scanty land and sparse resources due to low and erratic rainfall requires pastoralist to develop well-balanced resource use (Odegi-Awuondo, 1990). Pastoralists develop selective grazing and browsing patterns and flexible herd management practices which included diversification of domestic herds, herd-splitting and a clear division of labour by age and sex.

Cultural ecology will enable us to understand how culture affects land use patterns, allocation of labour and beliefs. It helps us in exploring the coping strategies that people have adopted to deal with drought and also new developments. The East African pastoral economies were viewed as having developed a well-tuned balance between mankind and nature. Ecological approach to the study of pastoralism in this case is viewed as a mode of production and a way of life adapted to the harsh conditions of the arid and semi-arid environment. It is a land-use system which puts into profitable use the scantily and sparsely distributed resources of the marginal lands without doing damage to the ecology. In these areas, rain-fed agriculture is marginally or conditionally possible. The features of the environment and the cultural structures by which the environment is exploited will have to be planned to cope with the new development in the subdivision of the group ranches and how this affects food security.

In the study area, the environment governs most if not all cultural and economic events. To increase productivity of the land, all actions taken will have slow effects at best considering the ecological setting. Land for agricultural production is scarce and at

the moment to increase production, marginal land has to be used causing the marginal productivity of labour and land to decline. These limitations on the environment mean that the present subdivision of the group ranches in Mashuru Division is disadvantageous to increased productivity with the prevailing economic conditions. The traditional society is one whose structure is developed with limited production methods and any technical innovations introduced in agriculture to increase productivity will require devoting very high proportions of its resources to agriculture. Major changes in both the economy and the balance of social values have to be made. Social values and organization which have long-standing tradition need to gradually change for the independent ranchers to benefit in the new production system.

The rise in population will determine the nature of demands made on the ecology. Whatever the changes are carried out on the group ranches the ecology will remain the same and these changes have to adjust to the ecology. The Maasai in Mashuru are not just about to take technologies that can alter land use like irrigation and commercial ranching. Change in land tenure may not change the stresses caused often by droughts, livestock diseases and overgrazing caused by population pressure. These changes worsen the recurrent food shortage, destitution, unemployment since nomadism will be a thing of the past and increased degradation of the ecology through tree felling, charcoal burning, clearing of vegetation for cultivation and more settlement due to fragmentation of the land parcels through rise in population and selling of land. These harsh conditions may in the long run create disintegration of the social values, outmigration and extensive farming in the fragile ecology.

The residents of Mashuru Division like other pastoralists are guided by a detailed knowledge of the physical and social environment and the kind of survival resources their adaptation responds to. Survival, then, depends greatly on the group's or individual's capacity to exploit the social and economic world around them. The cultural ecology theory is the most appropriate perspective to the understanding of adjustment to the environment and the cultural arrangements by which the environment is exploited.

## **2.2. WORKING HYPOTHESES**

1. The subdivision of group ranches will affect the normal Maasai pastoralism and livestock production thus reducing the chances of achieving sustainable food security.
2. Lack of skills in the management of the individual ranches will create land degradation and thus reducing availability of food.
3. Only proper planning at the national and local levels of communal infrastructures among the more independent Maasai will ensure sustainable food security at local and household level.

## **2.3. OPERATIONLISATION OF VARIABLES**

When considering the socio-economic status of the farmers in Mashuru, Kajiado, subdivision of group ranches, food security, income and level of education are considered as the variables to be measured. Food security and income are the dependent variables while Subdivision of group ranches and level of education are the independent variables.

Subdivision of group ranches is indicated by fragmentation of the group ranch to its members. All members get equal parcels of land. Each member undertakes all

development of the parcel individually and has or will have title for it.

Food security as a variable has several indicators. Food should be available to all the people at all times when required. There must be surplus food to be stored to make food available even when production is affected. Absence of malnutrition may be an indicator of food security. Food security will be associated with the livestock wealth that can easily be disposed of to acquire food and the amount of area cultivated by each individual.

Income as a variable will depend on the sale of animals and other animal products. The frequency and number the rancher is able to sell will determine the income. Income may also come from sale of crops and from non-farm sources.

Level of education will determine the management of the ranches and whether those who are educated can get formal employment elsewhere. It will differ in level where the rancher has reached; primary level, secondary level or college level which could enable one to follow a training on ranching practices.

## CHAPTER THREE

### METHODOLOGY

#### 3.0. STUDY AREA

##### 3.0.1. Introduction

The general information of the study area is given below to express the situation on the ground for a good understanding of all factors considered. Location will show readers the exact location and the general communication. Settlement in a way reveals the potential of an area. The heavier the settlement, the high the potential and vis vas unless there is a factor prohibiting settlement. Climate, soils and geology are some of the factors the show the potential of and area. In the case of Mashuru the low rainfall greatly reduces the chances of economical rainfed agriculture. It therefore lives the option of ranching as the most suitable landuse in the present condition. Subdivision of the ranches will affect productivity of the land and therefore reduce food availability. These information is given to strengthen the fact that subdivision of the former group ranches will affect sustainable food security.

##### 3.0.2. Location and characteristics of Mashuru Division of Kajiado District

Kajiado District is located on the southern tip of the Rift Valley Province (Republic of Kenya, 1990). It covers an area of 21,105 square kilometers which is 3.5% of the total area of Kenya. Mashuru Division which was established in 1989 is on the northern end of Kajiado District bordering Machakos and Makueni Districts.

Kajiado District falls in what is considered as the ASAL (Arid and Semi-Arid Lands) area of Kenya (Dietz, 1986 & 1987; Dietz and Koninx, 1984; Sombroek et al,



Figure 1. Kenya showing Kajiado District and Mashuru Division



1980). Many factors have been considered in the definition of ASAL among them: rainfall, evaporation and altitude. The rainfall mean per annum in Mashuru Division ranges from 539 to 636 mm (E.A.M.D., 1974). The mean annual temperature ranges from 20 to 24°C (E.A.M.D., 1970). Evaporation is calculated using the Woodhead 1968 equation (Woodhead, 1968). The ratio of the mean annual rainfall over the mean annual potential evaporation (in %) has been used to define ecological zones (Braun, 1976). Mashuru Division is in zone 5 which is semi-arid. 75% of Kajiado District is Semi-Arid. Physiography and soils are greatly influenced by geology (Sombroek et al, 1980; Touber, 1983). Geology of the study area was surveyed by Baker (1954), Searle (1954) and Saggerson (1963).

Mashuru Division was carved out of Central Division in 1989 (see figure 1). The railway line from Konza to Kajiado marks most of the northern boundary except near Konza where the boundary follows the former Ilmamen Group Ranch boundary. The North-east boundary runs along the railway line from Nairobi to Mombasa. On the East, the Kajiado district boundary with Makueni District is the divisions boundary. On the South and South-west, the division's boundary follows the outer limits of Merueshi, Mbuko, Nkama, Osilalei, Imaroro-Mashuru and Emarti Group Ranches.

Mashuru Division is the second last in size after Magadi Division with an area of 3286 km<sup>2</sup>. It extends between latitudes 1° 44'S to 2° 26'S and longitude 36° 50'E to 37° 45'E. The general altitude ranges between 924 m at Kiboko railway station to 1326 m at Kima station, which is only mid-way from Kiboko to Konza.

The Nairobi-Mombasa road passes through the division entering at Emali to

Kiboko river. All weather roads include the road from Emali to Isara and from Sultan Hamud to Kibini. These two roads are sometimes rendered impassable when drifts are eroded after heavy storms since most river crossings have no bridges. All the other roads are passable during the dry season only. The road from Isara to Mashuru and Kajiado passes in most places in the center of the division. Many tracks start from this road connecting shopping centers with supply and administration centers

The Nairobi-Mombasa railway line marks the north eastern limit of the division and provides most transportation between the several stations occurring from Konza to Hunters Lodge. The other line from Konza to Magadi Soda Mining marks the northern limit of the division and provides local transportation in that area.

### **3.0.3. Demography and Settlement**

Mashuru Division has seven locations namely Kenyewa, Poka, Nkama, Imaroro, Imukush, Osilalei and Maparasha. Mashuru Urban Center is the divisional headquarters. The total population of the whole division is about 36,000 with a density of about 11 persons-per square kilometer. Urban centers with dense settlements are located mainly along the railway line where immigrants from nearby Ukambani have settled for small scale subsistence arable farming. These centers are Emali, Sultan Hamud, Kima, Kalembwani, Kiu and Konza. The centers along the railway line have high population on the Ukambani side and only about 10% of the population of Mashuru Division are in these centers. Other Urban Centers not having any cultivation but have other commercial activities are Isara, Makutano, Maparasha, Mashuru, Kibini and Imaroro. Mashuru Division was part of Central division and was not separated in the 1989 census. According

to the 1979 population census, Kajiado District had a total of 149,005 compared with 86,403 in 1969, an increase of about 70%. In 1989, the population of Kajiado District increased to 258,659, an increase of about 73%. Population densities increased from 4 persons per km<sup>2</sup> in 1969, 7 persons per km<sup>2</sup> in 1979 to 12 persons per km<sup>2</sup> in 1989.

Table: Population of Kajiado District

Census year	1969	1979	1989
Population	86,403	149,005	258,659
% Population increase	-	72	74
Persons per km <sup>2</sup>	4	7	12

Development of permanent housing and semi-permanent housing is evident around towns and other commercial smaller centers. Ranches with modern houses have better management and some have combined small scale arable farming with ranching. Few individuals in the partial pastoralist farming system have permanent houses. Most houses here are the traditional "manyattas" with a few upcoming settlement adopting improved manyattas and few houses roofed with iron sheets. The type of buildings is an important physical indicator of socio-economic status of wealth or poverty of families and community at large. It is also an indicator of status of settlement and subdivision or ownership of land. Permanent settlement goes with assurance or security of ownership of land. Ethnicity, culture and landuse diversity are important in choice of housing/settlement. The Kamba tenants for example have adopted their traditional grass

thatched houses in rented or acquired land.

#### **3.0.4. Climate**

Rainfall of Mashuru Division is of the bimodal type (E.A.M.D., 1974). The long season occurs between March-May and the short rains in October-December. The average annual rainfall ranges between 539 mm Mashuru Dispensary and 636 mm in Simba Railway Station. The average annual evaporation ranges from 1855 mm in Mashuru Dispensary to 2073 mm in Kiboko Camp. Average annual evaporation was calculated using Woodhead's (1968) equation  $E_o = 2422 - 0.358h$ .  $E_o$  = potential evaporation of open water in mm;  $h$  = altitude in meters. The mean annual temperatures (calculated) range from 20°C in Mashuru dispensary to 24°C in both Simba Railway Station and Kiboko camp (E.A.M.D., 1970). It is assumed that rainfall equalling 2/3 of the potential evaporation is required by a crop like maize, with a growing period of three months and less than 1/2 of the potential evaporation in the growing season will lead to crop failure (Braun 1976).

Mashuru Division falls in ecological zone V. The ratio of mean annual rainfall over mean annual potential evaporation (in %) has been used to define ecological zones. The following boundary values have been used: zone VI: 10-22%; zone V: 22-37%; zone IV: 37-52%; zone III: 52-67%; zone II and I more than 67%. Mashuru has been divided in to zone Va (30-37%) and Vb (22-30%).

### **3.1. DATA COLLECTION**

#### **3.1.1. Secondary data**

Secondary data have been obtained through books, periodicals, journals, development plans and reports from Kajiado district. Some books consulted were dealing with arid and semi-arid lands in other parts of Kenya.

#### **3.1.2. Primary data**

Primary data were collected during field work in Mashuru Division through direct observation, key informant interviews and focus group discussions.

#### **3.1.3. Study Design**

The study carried out a qualitative research on the effects of subdivision of the Group Ranches on food security. It involved approaches which seek to describe and analyze the culture and the behavior of the Maasai towards the above subject. The study is committed to views, actions, norms and values from their perspective. It relies on a research strategy which was flexible and interactive and allowed for the discovery of unexpectedly important topics that may not have been visible when setting the data collection methods.

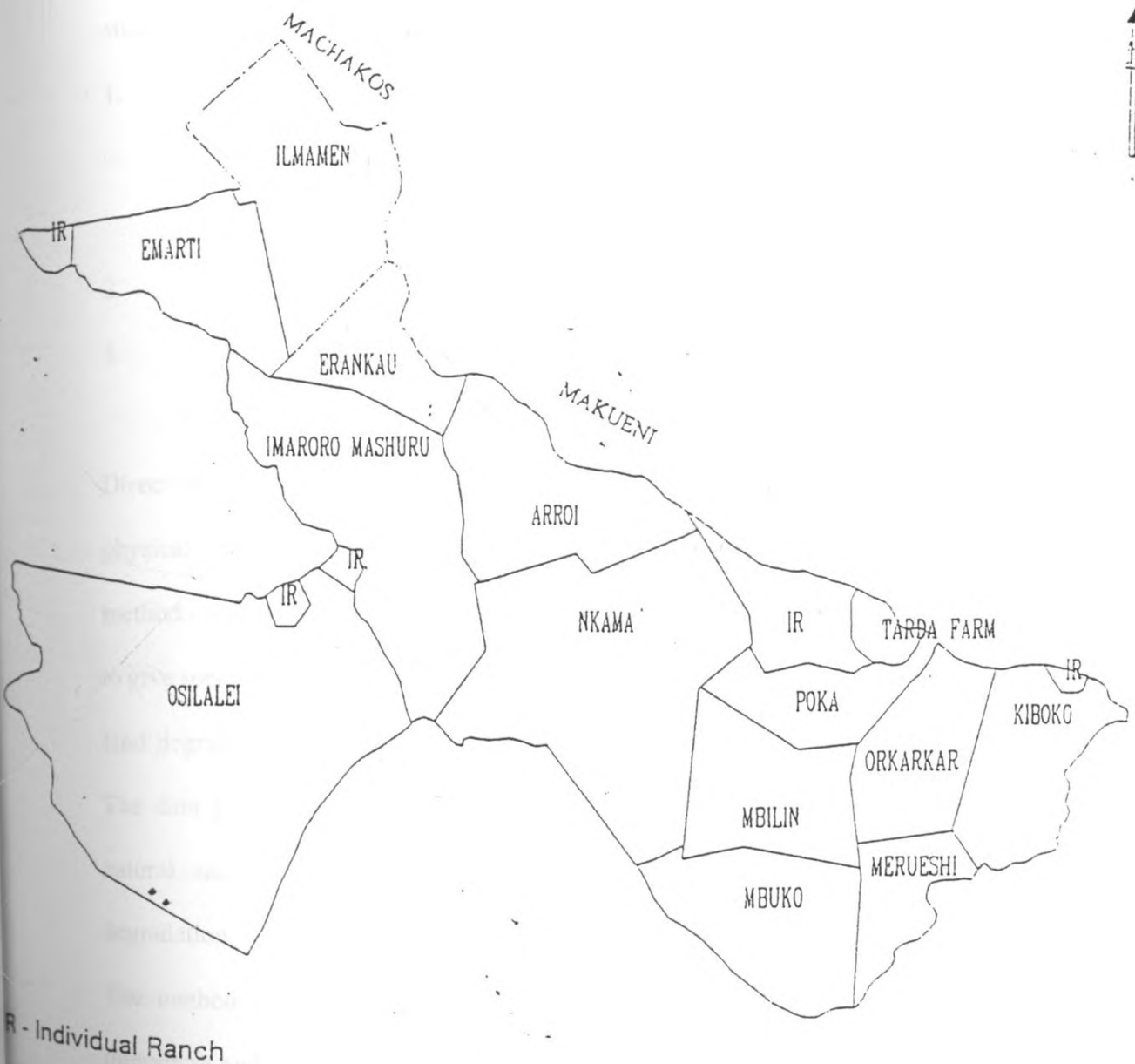
#### **3.1.4. Sampling and sample size**

There are 13 Group Ranches in Mashuru Division. The ranches are categorized according to the stage they have reached in the subdivision process. The first category has successfully carried out the subdivision and title deeds issued. The second category are those ranches that are informally sub-divided thus the members know their parcels but are still preoccupied with the process of formalizing the subdivision. The last category are those still not yet subdivided (Munei, 1992). A three-stage sampling design was used

(Bernard, 1988). The first stage was making a list of the Group Ranches and the category they fall in, thus narrowing down the study to clusters as they occur. Secondly, a systematic random sampling of Group Ranches from each category was carried out. Finally, in the third stage of the design, systematic random sampling of individual ranch members in specific areas were interviewed in groups.

There are three categories of Group ranches as stated above. Three focus group discussions were carried out in every group ranch especially to confirm the category they fall in. The ranches in each category were numbered. One Group Ranch was randomly selected for detailed research. Mbilini was selected for those already successfully subdivided and titles issued, Imaroro/Mashuru for those informally subdivided and Kiboko which is still a group ranch todate. For each ranch selected, systematic random sampling was done from the population to get the number required for the focus group discussions. Due to shortage of time available for the exercise, six focus group discussions per selected group ranch were done.

Figure 2: FORMER GROUP RANCHES MASHURU DIVISION





### 3.1.5. Data Collection Methods

There are many research methods in the tool box of a qualitative research. For this study, the following were used:

1. Direct observation - the area in its natural setting, phenomenon, events, infrastructure, land use, land degradation, ecological conditions and any other information of interest.
2. Key informant interviews.
3. Focus group discussions.

#### **Direct observation**

Direct observation consists of systematically observing a phenomenon, event, process or physical object in its natural setting. It is generally combined with other data collection methods such as individual or group interviews. Relatively short visits may be sufficient to give specialized observers a good perception of the infrastructure, ecological conditions, land degradation, land use and tenure and other issues predominating in the study area. The data gathered covered communication, settlement, water resources which include natural and man made resources, farming systems and associated problems, land degradation, livestock markets, non-farming activities like mining and charcoal burning. The method complements the other data collection methods like the key informant interviews and the focus group discussions. To have a good perception of all phenomena in their natural setting, direct observation is preferred. The researcher would then make conclusions of the current situation in the field. For instance, to understand the farming systems in Mashuru, one has to physically make direct observation of the area under study.

## **Key informant interviews**

Key informants are generally supposed to possess special and indepth knowledge on the specific topic of interest. Key informant interviews consist of interviewing a number of strategically selected individuals who may provide the needed information on the problem issue. The key informant interviews may be conducted with different categories of informants.

In this study the key informants were ASAL through staff of implementing agents who included the District Livestock Production Office, District Veterinary Office, District Water Development Office, CBOs and NGOs. Others interviewed were staff of mining companies at Kibini and near Masimba, Churches, Independent NGOs and CBOs. Extension officers in crops, livestock production and range management were interested parties in the research and as such were not interviewed. Their duties were covered in the ASAL programmes which provided funds for the various extension services rendered. The first step was to use an interview guide comprising a minimum set of questions to be covered during the interviews. The interview guide was limited to 10 - 15 basic questions. Such an interview guide, however, was not rigidly followed or adhered to during the interviews. To be able to accommodate all groups of people, the interview guide was relatively flexible. It was allowed to follow leads and viewed topics that arose in the course of the interview (Pelto and Pelto, 1978).

Indepth knowledge on the specific topic of interest was obtained from ASAL on the programmes they cover in Kajiado District. These programmes included water development, rural economic development, land use planning, capacity building and

supporting economic diversification and intensification. This information had to be collected from those who had indepth knowledge for each programme.

### **Focus Group Discussions**

A focus group discussion is that type of discussion where the subject is more than one person. A focus group discussion allows the researcher to make inferences about groups and the unit of analysis is the group and not the individual. The term "focus group" refers to a special type of group discussion in which the researcher controls the purpose, size, composition and procedures of the group discussion. In the study area, the focus groups were composed of 6 individual ranchers who belonged to the former group ranch. The questions in the discussions were open ended and followed a logical sequence.

Members of the former group ranches including Kiboko which is still a group ranch are the same members who initially came together to form the group ranch. The only new comers are their children who have matured during the life of the ranch. Even these too are similar in all aspects to the older members. All in the focus group discussions favoured and were happy with the subdivision. Those with title deeds were proud of having freehold ownership of their parcels and were looking forward to successful ranching future. They all did not have any ranch management experience and still gave in to the cultural way of life. This was seen during the dry spell after the short rains failed to come. People converged from far and wide to areas where there was still grass and when it was exhausted, all including the individual ranch owner moved in such of pasture.

Most members in the focus group discussions were semi-illiterate or illiterate

except in the former Mbilini group ranch where the chief assisted in organizing the groups which included some educated participants. However, all the people were keen to learn new skills. The younger generation were educated and the primary schools were increasing in the area. Information given by the different groups including those with educated participants in Mbilini was matching. Generally, even the Maasai who have not been to school have a lot of experience in the management of livestock. Having been with livestock from youth, most of the management techniques are learnt gradually.

The income of the various members though different, was within reasonable margins. The very rich members give some of their livestock to others to keep like their own. In this way most people in the community appear to be comfortable with the number of livestock they keep and the income generated from the livestock products. Those who are given livestock by their rich neighbours can also sell some of the livestock on request when the need arise. Food availability went with seasons. In the wet season when there was plenty of forage for cattle, milk yield which earns income for most households is high and all can afford to buy food required in addition to consuming the milk themselves. In the dry seasons most families suffer food shortage and with reduction in the milk sales, the power to purchase food is low. All the members in the focus group discussions were in this economic situation. The level of income was differing in cases where some members had small stock: goats and sheep and could sell more to buy food. Those with more cattle also sold some to buy food and meet other financial requirements.

### **3.2. Data analysis**

The direct observation was done in the whole Mashuru Division and the findings recorded. Investigations covered during the direct observation included collecting data on infrastructure, water resources, farming systems, problems especially land degradation, causal factors for the problems, motivating factors of the problems and the underlying factors of the problems, marketing of livestock and non-farming economic activities in the division. Key informant interviews were conducted and each interview was recorded separately. Key informants interviewed included ASAL staff, implementing agencies of ASAL development projects and staff of mining companies like Portland cement company. Summaries of the focus groups discussions were recorded for each subject. The focus group discussions included members of the former group ranches only. Men were interviewed separately and women separately. In the beginning of the study, men and women were put together but women never contributed and if they did, they would do it in kimaasai for one the men to translate. Women do not talk where men are and this therefore necessitated separate discussions for men and women. Using the above data, conclusions and recommendations were made.

## CHAPTER FOUR

### DISCUSSION OF THE RESEARCH FINDINGS

#### 4.0. DIRECT OBSERVATION

##### 4.0.1. General

Mashuru Division is characterized by grasslands and bushed grasslands to forests especially along the flood plains. Grasslands have few or no herbs and shrubs while bushed grasslands have a high percentage of herbs and shrubs in relation to grasses. With subdivision of the former group ranches, many individual ranch owners are clearing bushes leaving only a few trees. This exercise is being carried out effectively with the help of charcoal burners. The clearing in some areas is going on very fast and in a few years the natural vegetation may disappear. Since the aim is to create more pasture and expanding cultivated area, it may be a step in the right direction only if carried out through the direction of agricultural, environmental and other divisional planners. The cleared bush material is used for fencing the cultivated areas and livestock bomas.

Generally the change in land use will affect the biodiversity. Bird life which is rich will be affected. Wildlife that preferred bushland will move to other areas. The developments occurring in the new land parcels is a definite panic that food security has been affected and diversification/intensification may be the solution required.

##### 4.0.2 Infrastructure

The northern area of the Division bordering the Makueni and Machakos Districts is well served by the Nairobi-Mombasa highway. Most roads connecting the interior with the highway were in very poor state especially after the el nino rains in the first half of

1998. Drifts and bridges had been destroyed and the repairs carried out were temporary. The road from Isara through Mashuru and Imaroro to Kajiado was good most of the way. From Mashuru to Kajiado, the road had received a new murrum surface and the remaining distance though motorable had some parts with Vertisols (black cotton soils) which were impassable in the wet season. The road connecting Sultan Hamud and Kibini was well maintained by the Portland Company to serve their mines. The road to Oloitoktok from Emali had also been damaged by the el nino rains and had not been repaired by the time the survey was conducted. Travelling through this road could be possible only in the dry season. There are many tracks connecting schools and commercial centers with the main roads and most of these are passable during the dry season only. Many of the commercial centers are found along the railway line and the railway is the life line for these centers.

Mashuru is the Divisional headquarters and apart from having a high school, primary school and mission stations (Catholic and New Life Mission), the commercial part of the center is small. Sultan Hamud, Emali, Konza and Masimba are the other large commercial centers. Other centers include Isara, Makutano (Game), Kibini, Imaroro, Kiu, Ulu, Kalembwani, Kima and Ikerunyeti.

#### **4.0.3. Water Resources**

##### Main Natural Water Sources

##### **(a) Rivers**

- (i) Masimba springs
- (ii) Mungush
- (iii) Kiboko or Kimugarri

- (iv) Eselenkei
- (v) Arroi
- (vi) Ol Kejuado

All these rivers are seasonal. Masimba springs yield more water in most part of the year and is therefore useful for most of the dry months when all others are dry. However, these rivers are important sources of subsurface water stored under sand. Manually excavated sand wells in river beds were evident in areas away from developed water sources. Sand wells are major sources of fairly clean water for both domestic and livestock use.

**b) Main Developed Water Sources**

The developed water sources include:

**(a) Boreholes**

There are 34 boreholes out of which 14 are functional and 20 non functional.

**(b) Water pans (silanga)**

With individualization/sub-division of the former group ranches, the locals prefer developing water pans privately or through smaller manageable groups. The following water pans were occur:

<u>Location</u>	<u>Water pans</u>
Mbilini	19
Arroi	38
Osilalei	20



Individual ranches

(near Sultan Hamud) 3

The other former group ranches had no water pans and some are preparing to construct some individually or in small groups depending on the affordability of the required funds.

**(c) Nolturesh water pipeline (from Mt. Kilimanjaro)**

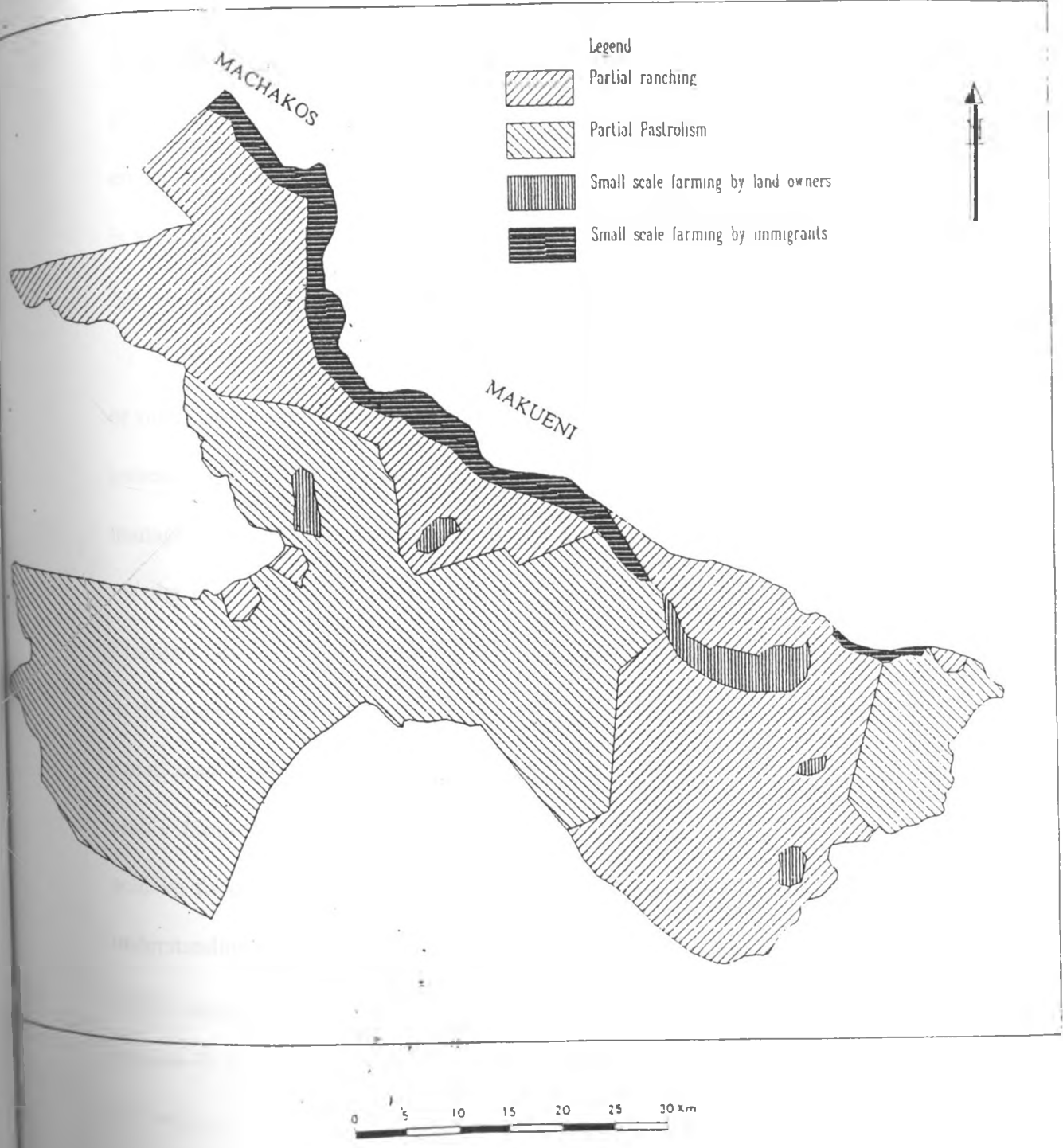
The Nolturesh water pipeline provides abundant fresh water through several branches:

- (i) Mainline - Merueshi to Sultan Hamud
- (ii) Branch - Isara to Mashuru
- (iii) Branch - Nzai to Emali town
- (iv) Branch - Konza to Kajiado

The Nolturesh water pipeline is actually one of the main water source for domestic use and livestock.

Well managed ranches that were subdivided and developed earlier have developed their own water sources while some had easier access to piped water from the Nolturesh water pipeline. Poor water development in the partial pastoralism area is due to poor organization and practical initiatives while in some cases unavailability of required funds. Development initiatives by the community and stakeholders have mostly focused on water pans excavation. Most former communally owned and managed boreholes are situated on private land and are poorly maintained. For this reason, many of the boreholes are not serviceable.

Figure 3: FARMING SYSTEMS IN MASHURU DIVISION



#### 4.0.4. Farming Systems

##### Introduction

A Farming system is where similar or closely related activities in areas like land, farm labour, capital, risk distribution and management are practiced. Broadly, other phenomena that play a vital role are for example ecology, social, cultural and political environment to name a few. Farms with similar activities are put in one class. The farm is an economic unit and the above activities are vital when planning development goals. No single activity is considered separately but an aggregate of all.

The low yield of grasslands in the semi-arid tropics necessitate either pastoralism or ranching. Group ranch systems in Kajiado and other pastoral areas were introduced to increase productivity by making the pastoralists commercially minded. Depending on the management and development, each group ranch took a direction they thought was better for the group. These developments resulted in different farming systems observed in Mashuru Division. The different farming systems in Mashuru will be classified according to the practices present. The following farming systems were identified (see figure 3): (a) Small scale arable farming by immigrants (landless and charcoal burners) (b) Small scale arable farming by local land owners (c) Partial ranching (d) Partial pastoralism. To achieve food security in the face of the subdivision of the former group ranches, an understanding of the direction the new land owners have taken is important. The farming system approach would make the classification of the different areas and the problems they are likely to encounter simpler to handle. The farming system approach has enabled the study to look at the agricultural skills and relate them to food availability while

considering the economical standing of the people. It offered the research means of identifying the associated problems and suggestions on ways of improving the divided ranches for a sustainable food security in the future.

### **Small Scale Arable Farming by immigrants (including landless and charcoal burners)**

The former group ranches near urban centers have tended to sell or lease land for cultivation. Most parcels are small; less than five acres. Some few large parcels of upto 10 acres per individual mostly immigrant farmers occur near these urban centers. Crops grown are maize and beans and these are mostly intercropped. Most of the crops harvested are sold to the local pastoralists. The farmers with more acreage sometimes act as middle men buying from the smaller farmers at harvesting period and selling when prices improve or transport the surplus to institutions like schools and other markets outside the division.

### **Small Scale Arable Farming by local land owners**

After the subdivision of the former group ranches, the ranchers are practicing small scale cultivation. The cultivated areas range from half acre to five acres. Crops grown are maize and beans intercropped. Only a few farmers were practicing single crop stands. All crops harvested are consumed by the owners. Those cultivating the larger areas are in most cases those with large families and what is produced with low technology is never enough in prolonged dry seasons. The small scale arable farming is practiced mainly in the ranches bordering Makueni and Machakos Districts because they hire cheap labour

from these Districts. In Imaroro/Mashuru group ranch, some of the members were originally from Ukambani and these have cultivated their parcels extensively. Those further away like Osilalei have not adopted any cultivation and the few with any cultivation have gardens of less than an acre around the mayatta. The Maasai have not yet adopted cultivation and would rather use labour from those communities whose main occupation is cultivation.

**Associated problems observed with both small Scale Arable Farming by immigrants and small Scale Arable Farming by local land owners**

The small scale farmers have to deal with the problem of land degradation and in some cases accelerate degradation. This problem results in low productivity per hectare. Causal activity of the problems can be associated with tree cutting for charcoal burning, fencing and clearing for cultivation. Loss of vegetation cover without proper soil conservation practices causes soil erosion. Degradation of the land results in loss of soil fertility. There is lack of willingness to sell livestock to control overgrazing and utilizing the funds for other investments. The socio-cultural practices of keeping large herds are in general the major causes of problems in this farming systems. Motivating factors of these problems are high demand for charcoal (lorries collecting and transporting charcoal, Large consignments of charcoal at every railway station waiting to be transported to Nairobi or Mombasa were witnessed), charcoal burners paid for casual labour in kind after working (e.g. fencing, burning charcoal as a business), clearing for cultivation and lack of alternative economic activity. Some of those cultivating are tenants and have no obligation to conserve. Rise in population and frequent droughts are some of the

motivating factors of the problems in these farming systems.

Underlying factors of the problems may arise from market availability of charcoal, easy and cheap transportation using the railway line traversing the area, easy access from the main Mombasa - Nairobi highway, poor regeneration of vegetation due to surface sealing and semi-arid conditions, food production, cheap leasing of land to immigrants interested in cultivation, land subdivision and individualization of resources, intermarriage with other ethnic groups with different cultural backgrounds.

### **Partial Ranching**

This system of farming is practiced in the individual ranches and in Group ranches that have successfully subdivided their group ranches. Some of the ranches which have been recently formally subdivided: Emarti, Ilmamen, Erankou, Arroi, Orkarkar, Mbilini, Mbuko, Merueshi and the individual parcels are being temporarily fenced using acacia twigs while Poka which was subdivided earlier, most members have fenced their parcels with posts and wire. In these ranches, the owners have title deeds and therefore have access to finances and also the right to plan their parcels well for maximum benefit. Farmers in these ranches are characterized by permanent residence and the size of herds and type are planned. Management is conspicuously of higher quality depending on the period of individual ownership. The land has better grass yields and could therefore have higher stocking rates. Choice and type of livestock is adhered to. Maasai believe that sheep destroy pasture or consume as much as cattle. Sheep, however, have quick profit in that they mature in about 5-6 months and can fetch quick cash. Even with this advantage, the numbers where there is controlled management is kept low. Some of the

partial ranchers had introduced doper sheep to improve income. Doper sheep are bigger in size and are said to have more desirable meat. All the above are effects of the subdivision of the former group ranches.

Most of the group ranches have been encouraged to subdivide by the benefits witnessed in the ranches that were subdivided early when subdivision was allowed and also the individual ranches in the area. Apart from grazing, these ranches are practicing cultivation. Former Poka Group Ranch and the neighbouring individual ranches are good examples. Some farmers have leased parts of their ranches for commercial cultivation of maize. Others are irrigating some areas of their ranches for fruit and vegetable farming. One ranch owner had over 5 acres of citrus while others grow kale (sukuma wiki), cabbages and onions. There is a tendency to increase irrigated areas as these products are in demand from the communities in Sultan Hamud and Emali towns. The Mombasa - Nairobi highway also provides a good market for these horticultural products. Those irrigating are however illegally using the water from the Nolturesh pipeline. The other former group members are in the process of leasing their land for commercial farming.

### **Partial Pastoralism**

In this system, ranch owners have no permanent place of residence and where they have settled, minimal supplementary cultivation is practiced. These former group ranches include Nkama, Osilalei, Imaroro/Mashuru and Kiboko which is not yet subdivided. Benefits of subdivision were lacking. There was no control on the number of sheep and goats. Introduction of exotic breeds like dopers was not adopted yet. Abandoned manyattas still exist throughout these ranches. Small garden farming (boma gardens) is

practiced around manyattas. Hired labour from neighbouring Ukambani is used for cultivation. Some households do not have gardens and rely on buying all the food. Burning of charcoal is practiced to earn extra income for both ranch owners and the burners. Former group ranches in this farming system are those that have been informally subdivided. All members know their parcels but due to some difficulties, formal subdivision has not been effected. Farming practices in these former group ranches is almost the same as in the previous class but control measures on stocking rates and type of stock are not strictly adhered to. The rangeland is somehow degraded and grassland yield is low compared to the ranches with formal subdivision. In this farming system, stocking rates are low but pastoralists have to still wander around regardless of the individual parcel boundaries in search of pasture since rangelands are not improved and cannot support livestock in prolonged dry seasons.

The families and the small stock (sheep and goats) together with sick cattle are left behind at the family's residence. When the research was in progress, the short rains failed and all cattle were moved to the Chulu hills. According to the local people, the cattle would continue to Tsavo National Park if drought persisted. The other class in this farming system, Kiboko has not been subdivided due to political interferences and non-fulfillment of the conditions set by the government before any group ranch could be subdivided. The ranch is excessively degraded. The grassland yield is very low. The land has been invaded by *ipomoea hildablentii* weeds that are not consumed by animals. This invader species is characteristic of degraded land. Over stocking is the main cause of degradation. Households have many more sheep and goats which in other former group



ranches are controlled to maintain good rangeland. Cattle herds are also not controlled. The management at community level is very poor. The members of this ranch move out in search of grass when the dry season is prolonged. A few members have gardens near their manyattas. The chairman of the group ranch had introduced bee keeping near his manyatta.

### **Associated problems observed in both partial ranching and partial pastoralism**

The main problems observed are low livestock productivity per hectare resulting from the size of land parcels after subdivision, lack of improved breeding stock, inadequate water supply, lack of awareness of alternative investment, cultural barriers in destocking at prime time when prices are high, lack of knowledge in improvement of pastures, and unavailability of improved breeding and high value for the breeding stock.

The problems of low livestock productivity per hectare are caused by poor management of pasture in the informally subdivided ranches, use of unprotected water sources, lack of community priority in investing on water development, inferior breeds of cattle, sheep and goats. Almost all the ranches have not adopted soil conservation practices and therefore continue losing vegetation cover and hence soil erosion. Tree cutting for charcoal burning and opening new land for cultivation was actively taking place and there was no effort to plant any trees to replace those cut down. The cultural practice of measuring wealth with the number of livestock was still being practiced.

Motivating factors of the problems are unavailability and high cost of breeding stock,

overstocking, material security, frequent drought, livestock diseases, cultural attachment to livestock, shortage of feed during drought, long distances to alternative markets, low family income in relation to demand for food, education, health, etc. Sale of livestock of poor body condition/low value and land conflicts are some of the motivating factors of the problems existing in partial ranching and partial pastoralism.

Underlying factors of the problems can be associated with individualization of all grazing land including the formerly dry season grazing areas and poor regeneration of pasture due to soil erosion and surface sealing, over reliance on external supply of breeding stock, uncertainty of exotic breed performance in the arid areas, social/cultural prestige, difficulty in saving and investing money obtained from livestock, low understanding of monetary lifestyle, over expectation of external funding, opportunistic mushrooming of business for youth and women groups and past experiences of defaulting of loans repayment e.g. (AFC loans).

#### **4.0.5. Marketing of Livestock**

##### **Transit Markets**

There are two notable transit markets in Mashuru Division. One is at Isara for animals coming from the direction of Loitokitok and the other at Sultan Hamud for animals coming from Konza and Mashuru direction. Cattle arrive in these markets on Thursday where some are sold mostly to local butchers and the rest given to agents who take them on foot to Emali. Only a few are sold in the transmit markets. Some especially heifers may be sold to other herdsmen before getting to any of the markets. Konza transit market started 2-3 months ago and may be more attractive to traders from

overstocking, material security, frequent drought, livestock diseases, cultural attachment to livestock, shortage of feed during drought, long distances to alternative markets, low family income in relation to demand for food, education, health, etc. Sale of livestock of poor body condition/low value and land conflicts are some of the motivating factors of the problems existing in partial ranching and partial pastoralism.

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Nairobi and its environs.

### **Market for Cattle at Emali**

The market day is every Friday from 7 am. to about 3.00 p.m. All the cattle is driven from the transit markets in herds by agents who are normally paid per head (animal). The owners then converge at the market on Friday morning. At the market many types of people or business men operate. Most conspicuous are middle-men who buy and sell to make gains. In a way, the middlemen are good in that they survey the market and will tell the prevailing prices in each day. Prices differ in every market depending on demand. Another important factor that determines prices is weather. When there is plenty of grass no farmer would be in a hurry to sell since they can wait for another market day.

During dry seasons, the prices are low since most sellers are reluctant to go back with the animals that have nothing to feed on. Peddlers with other merchandise do capitalise on the market too. Some are selling foodstuff, others clothing, animal related products like ropes, Maasai swords, etc. The Veterinary staff facilitate the supply of Veterinary services by availing them to the farmers at the market. In all, the market is a very important economic activity in the area and thus makes the towns in the neighbourhood to thrive. These towns have most hotels fully booked by those participating in the market activities on the eve of the market day or on the market day itself.

Traders come from many places to buy animals. Some come from as far as Mombasa and Nairobi. Those from Mombasa put their animals on lorries but those from

Nairobi use stock driving agents to walk them to Nairobi. Other buyers come from Ukambani, mostly Makueni and Machakos districts. The Nairobi and Mombasa buyers are mainly for slaughter and will go for mature steers and fattened cows. The Ukambani and nearby areas buy heifers and cows for breeding and increasing their herds. They also buy young steers for rearing to train as draught animals and others for fattening. A small number of animals go to the small butchers that are walking distance from the market.

Cattle prices depend on size and quality. Prices range from:-

Cows	=	8000.00 - 15000.00
Heifers	=	4000.00 - 8000.00
Steers	=	10000.00 - 30000.00
Immature steers	=	3500.00 - 10000.00

Most families will sell on average one to two animals per month. Taking an average of 10,000.00 per animal, each family will have 10,000-20,000.00 per month depending on the demands mainly for maintaining the herd.

Only a little of this income goes for the families welfare eg. food, health, school fees. The women are supposed to provide for these costs from the sale of milk and products like hides. Only when the amount of milk is high, the man gets involved. Milk sold is depends on the season. When there is enough forage for the cattle, there is plenty of milk but when forage decreases the cattle is moved to where there is grass and the women have no more milk to sell. Some men after solving the needs related to animals spend the rest on pleasure; i.e. economic gains from livestock is not translated into better livelihood for most families.

#### **4.0.6. Non-Farming Economic Activities**

##### **Limestone Mining by Portland Cement Factory**

The Portland Cement Factory at Athi River receives some of the raw material (limestone) for the manufacture of cement from a mine at Kibini, about 18 km south west of Sultan Hamud. The factory has a lot of influence on the community in that area economically and socially. Population at Kibini is higher than the surrounding area. The community around the factory grow crops like sukuma wiki through tap water for sale to those working in the factory. Excavations, dumping of unwanted material and dust around the factory area makes the environment hostile.

##### **Gemstone Mining**

The communities at former Olkarkar Group Ranch and the neighbouring ranches are already making arrangements with prospectors who earlier through their surveys discovered gemstones in the hills near Masimba. As in the limestone mining, these activities could greatly influence the economic status of the area.

##### **Charcoal Burning**

Charcoal burning is important in Mashuru as far as land, vegetation, soil conservation, income generation and crop cultivation are concerned. The most outstanding effects of subdivision occur due to this practice. Most individuals after receiving their parcels embark on clearing for burning charcoal to earn money which in a way saves them from selling livestock. Since livestock numbers have reduced, few ranchers are willing to sell.

In practice charcoal burning involves indiscriminate, wanton felling of trees for:-

(a) Opening new land for cultivation e.g. the partial pastoralist rent part of their land for

cultivation to immigrants who are mostly Kambas.

(b) Income generation - Immigrants are allowed to cut trees freely for charcoal to sell as payment for providing labour and earning extra income for the land owners. The trade thrives because of ready market and easy transportation using the railway line.

The charcoal burners prefer trees in the riverline forests since they get more trees within a small area. When the trees are cut riverline areas are open to erosion degrading the fertile alluvial plains.

#### **4.1. KEY INFORMANT INTERVIEWS**

##### **ASAL (Arid and Semi-Arid Lands) Kajiado**

The objective of ASAL Kajiado is to enhance the people's capacity for self-sustained development by strengthening the socio-economic position of the rural population, with special emphasis on the position of women, through ensuring food security and through the increase of (non) livestock cash incomes, which should reach a level adequate for the purchase of basic consumer goods and services (including health care and education), within an ecologically sustainable land use system, which recognizes the complexity and complementarity of different types of land use.

ASAL Kajiado aims at using the participatory approach in their programmes. Participation of men and women is encouraged in all phases of development process from identification and planning to implementation, maintenance, monitoring and follow-up. A major instrument to enhance community participation in the organization of the community in cost-sharing activities. This, ASAL says has proven to contribute substantially to the process of involving them in the decision-making process in all phases of implementation and also strengthens to realize the importance of investing in their own

environment and future. The programme recognizes the men, women and children within the community in which it is in operation. While effecting the programmes, the roles of men, women and children are taken into consideration. Therefore, the plans need to use the practical gender needs only as an entry point to ensure that women's strategic needs are met and their autonomy enhanced. Men and women have different roles and operate along different time frames. The time frames of men, women and children have to be accommodated in all interventions. Meetings for example are arranged when both men and women are available which means encouraging inclusion of women in meetings that discuss interventions to benefit both men and women, e.g. water. Apart from community programmes directly, ASAL assist the District in land use planning, capacity building and in addition support economic diversification and intensification. ASAL programmes currently being undertaken include:

### **Water development**

These projects are carried out through cost sharing to individuals and organized groups. The programme deals with small and medium scale water projects like roof catchments, rock catchments, pan dams (silanga), rehabilitation of boreholes and shallow wells. Water is considered as a priority need for the rural population and a distinction is made according to the motivation for this need along gender lines. Water is an input directly or indirectly for many related economic activities.

### **Rural economic development**

The main focus in this sector of the programme is rural development, by increasing the production capacity of the existing pastoral or ranching livestock system for sustainable food security. This ASAL says will be achieved by stimulating



intensification and diversification based on and supplementary to the pastoral system. In the intensification project, the programme facilitates the community in the procurement of improved cattle breeds (Sahiwal), in-calf heifers (Fresians, Aryshires), Galla goats and Doper sheep. The facilitation involves identification of sources to purchase and the selection of the animals. Farmers meet the full costs for animals and transport.

In the livestock diversification project the major activities are introduction and stimulation of camels, bee keeping and promotion of poultry keeping. ASAL has a compatible agriculture project which aims at developing concepts complementary to the rural livestock economy. They have supplied farmers with oxen drawn ploughs and other agricultural equipment and organized training of farmers for groups that have acquired equipment. They have also provided oxen and donkey trainers to facilitate use of the equipment.

In the livestock marketing project, construction of marketing facilities (auction yards), collection and dissemination of cattle prices at various markets by radio and the training of and provision of credits to livestock traders. The community based animal health care project assists in recruitment and training of paravets and the construction of spray crushes. In the range development support project, activities have concentrated on the construction of water pans. The water pans are implemented in areas without any sustainable water facility. They say some communities have opted for the construction of water pans, because they considered the rehabilitation of existing facilities (boreholes) not cost efficient. The community forestry project mainly deals with development of central nurseries. ASAL is trying to facilitate the identification of wildlife utilization within group ranches through communication and cooperation with KWS but they say this programme

has proved to be very difficult.

### **Implementing agencies of the development projects**

All ASAL development projects were implemented in collaboration with agencies they fall under. The rural water supply projects were implemented by the Ministry of Water together with Community Based Organizations (CBOs), Non-Governmental Organization (NGOs), and private enterprises. Livestock intensification and diversification projects were being implemented by the District Livestock Production Office. The District Veterinary Office was implementing the community based health care project. Livestock marketing and range development support projects were being implemented by the District Livestock Production Office. Compatible Agriculture Project was being implemented by the District Agricultural Office. The community Forestry Project was being implemented by the District Forestry Office.

### **Portland Cement Factory at Kibini**

The Portland Cement Factory at Athi River has a mine at Kibini, about 18 km south west of Sultan Hamud for the supply of raw material (limestone) in the manufacture of cement. It's present mining site covers an area of 900 acres that is under leasehold for 99 years from Kajiado County Council. Recently the company purchased 450 acres of land from Nkama Group Ranch for future development in the supply of the required raw materials. This new site is near the present site. It is located on very flat, rich rangeland and is estimated to supply raw materials enough for 30 years. In the meantime, the company allows the community to continue grazing their animals on the property in addition to use of the areas not yet utilized in the leased land.

The company employs a work force of about 62 employees and 27 casuals. Some of the

employees have their families with them in Kibini. The factory has therefore a lot of influence on the community in that area economically and socially. Through agreements with the company, the community around the mine are supplied with free water. The company has provided water for domestic and livestock use through development and maintenance of three boreholes. In some areas further away from the mine, the company has assisted in making water pans for collecting runoff water for livestock. The company also provides health services for the community and also transport facility to Sultan Hamud for all patient cases that could not be handled at Kibini. The school at Kibini has also been built through the assistance of the company but the running of the school left to the community. Skill development courses are also provided in some areas like in agriculture and forestry. The community is taught farming techniques though no evidence of farming was witnessed. The company has a tree nursery and encourages the locals to plant trees.

To maintain good relationship, the company also pays for any loss of animals through accidents like falling in the pits or being hit by company vehicles within the company land at the rate the elders determine. Allowing free grazing on company land is one of the reasons for the cordial relationship with the community. The land along the railway and road from Sultan Hamud to Kibini is owned by the company (total 123 acres). This road is maintained by the company and in addition all the roads to the boreholes. The company also provides waste material which is good for construction work to most community projects like churches, hospitals and schools. Methodist church through the assistance of Korea, exploits the company's good gesture in the use of the waste materials for construction work in their projects. The Company Foreman gave the above

information.

The company has a lot of waste material suitable for road improvement. Those in-charge of roads maintenance could request the company for assistance to repair the roads near the mine while areas further away, cost sharing could be requested. In this latter case, the council could provide transport while the company provides materials and the loader-machine. Only the low lying areas of the roads require graveling while the raised areas with stable soils may not require graveling. Attention of road improvement could be given to those low lying areas with expanding clays.

### **Gemstone Mining**

The hills around Masimba in Olkarkar have gemstones. During the focus group discussions, some of the pastoralists were already making arrangements with prospectors who earlier through their surveys discovered gemstones in the hills near Masimba. These arrangements were at an advanced stage and agreements to start mining could be sealed in a very near future. As in the limestone mining, these activities could greatly influence the economic status of the area. Those mining will improve the infrastructure in the area. Water which is in great demand in these semi-arid lands could be provided as the miners sink boreholes for their use and the community around them. They have also promised to improve the roads near the mines. Assistance in providing water and good roads could create harmony between the new comers and the patoralists. Perhaps even schools and health centers could be started since the communities at former Olkarkar Group Ranch and the neighbouring ranches are willing to support and even contribute towards establishment of these facilities. With some effort in organizing from a neutral person to overcome the mistrust that has been created by some leaders in the past, the pastoralists

could easily contribute towards the above development. The companies mining should restore the land after exhausting the mines.

## **4.2. FOCUS GROUP DISCUSSIONS**

### **Staple food**

The Maasai diet in the past included milk, blood and meat. These were the foods that were readily available to almost all pastoral communities. Since their livelihood was based on livestock products, these food commodities were available. Livestock would be killed for meat while blood would be extracted from live animals. Milk was obtained from lactating cows and the amount would depend on the season and the number of lactating animals. This diet has completely changed due to the socio-cultural and economic changes. As pastoralism changes to ranching, the money economy has replaced the livestock economy. The effects of subdivision have been or are being realized. Ranchers would rather sell their livestock and then buy the amount of meat required from butcheries like all the other communities. Animals are killed only when there is a ceremony like when there is a new born baby, during circumcision, marriage or any other rituals and ceremonies but not as food to be consumed by the family. Extraction of blood has disappeared through socio-cultural changes. The young generation has refused to drink blood and this development has affected the practice. Milk is still consumed though most milk in almost all the families close to urban centers covered by the interview is sold for cash to assist in purchasing food and for women meet their needs. Milking and selling milk is considered as women's duty and men do not participate. The only time men as the heads of the families are involved is finding out whether those milking leave enough milk for the calves to suckle. Normally two teats are milked and even then, not

completely so that the calf's growth is healthy.

The most common foods consumed include: maize, beans, vegetables, rice, wheat flour etc. Women said that the maasai practically consume all foods sold in shops. What is however popular are all foods produced in their gardens. Traditionally ugali (ground maize meal) and milk are the staple food especially where milk was plenty. Milk is popular especially for those people far from markets for the milk. Those people far from markets consume all the milk they produce. However those near market (urban centers) sell most of their milk and only leave a little for children. For this class of people, grown-ups consume milk only in tea. Milk is sold in bottles but in the field women measure their milk in what they call mpira (the five liter plastic can). Fats from milk and also from slaughtered animals meets the cooking oil requirements. Some ranch owners grow enough maize and beans for their consumption while others grow a little to supplement their income but the majority do not grow any crops. Vegetables are also grown in gardens by some families during the wet season. The cultural community attachment makes families that are rich or have enough food resources to share with their neighbours what they have. It was revealed in one of the focus group discussion at Mbilini that not all Maasai people own livestock but those who have, give some to their neighbours to keep as theirs and use milk to generate income for their needs and can even be allowed to sell the livestock in their custody on request depending on the need. There are therefore some very rich Maasai in the community who own most livestock which they possess through inheritance.

### **Food availability**

Food availability for all is a problem. All those present in the FGD expressed interest in the desire to increase crop acreage to improve food security but were hampered

by some problems like no oxen or donkeys for animal traction. Animal trainers for animals used in ploughing are not available. Tractors are not available for hire and when they come, they come too late (the maasai consider this as sabotage to make them continue relying on their neighbouring districts for food supply). Late planting due to these problems may be the cause of crop failure, said some members in the discussions. In the former Arroi group ranch for example, a foreigner who bought land near the Kima Railway Station rarely records crop failure due to early planting (dry planting) since he has his own implements. Labour for some jobs like cultivation which are considered as foreign is in short supply. All the participants in the FGD said people would be willing to diversify in the growing of crops to accommodate crops like cassava, pumpkins, sorghum, millet and any others that can survive in the semi-arid climate.

Water harvesting is done through construction of pan dams (silanga) for animal and domestic use and no other methods have been tried. Pan dams require specialized machinery to make. These equipment was not available to assist the people in their construction. Pan dams could alleviate the water problem though temporarily for the people of Mashuru Division who are not served by the Nolturesh pipeline.

Many of the Maasai people prefer big livestock to small livestock. They say when one has a cow, he or she can sell it and buy many goats or sheep. However, cattle are sold when there is a major need and when the numbers reduce selling is minimized. The small stock come in handy since selling one or two, the food requirement is easily met. Goats and sheep are sold every day of the week at home and in every urban center unlike cattle which have to wait for the market day in the limited specific locations. Again in the dry season, goats and sheep do not move in search of grass. When there is food shortage

these can be sold to solve the problem. During the fieldwork, families with few or no goats and/or sheep were suffering from hunger since the cattle that supplied milk or could be sold to buy food were gone in search of grass.

### **Income**

In general income is generated through sale of livestock. All the members present had no formal or informal employment. Expenditure on food depends on the size of the family but for an average (6 persons), about 6000/= per month is normal. The number of cattle, sheep or goats sold per month depend on the needs. When needs are low sheep or goats are sold while sale of cattle occurs when needs are high. When paying school fees, buying livestock drugs, dipping livestock, sickness etc, one or two heads of cattle are sold every month. Milk sold also contributes to the purchase of food requirements in each family. On average each family has 50 heads of cattle and slightly more sheep and goats. According to some members present in focus group discussions, not all Maasai have livestock. Most livestock in Mashuru belong to a few rich people. These people however, distribute them to neighbours and members of their clan who look after them like their own. The animals help the families through utilization of all the milk products from all lactating animals and if a major need occurs the owner of the livestock can allow them to sell on request. Those who are rich in livestock wealth have almost always inherited the wealth from their parents. In recent days drought and diseases have reduced the livestock population greatly.

Almost all Maasai women do not work. Their income is from the sale of livestock and from the sale of milk. Most women belong to a women group and most of the groups are engaged in steer fattening. Depending on the groups, each lady contributed a calf or



two in the beginning and these are fattened and sold. The income from the sale of the steers is spent on buying calves for fattening and the balance is spent according to the group's plans. Most groups use the money on development projects the members choose. The groups interviewed were buying iron sheets (mabati) for roofing their mayattas and other forms of housing. The groups carrying out these forms of development plan to help the women collect water for domestic use from the roofs. One of the problems in this venture is that they have left out the men in the plan. Since women have no other sources of income apart from milk which is normally spent on food items and other personal needs of women, the project is not bearing any fruits. Most women who received the mabati could not get money to buy timber and end-up wasting them.

In general, women depend on the income of men. It is the men folk that sell livestock and from the income women are given a share. The Ministry of Agriculture and Rural Development is encouraging bee keeping and a few families have started. This could be another way to earn extra income. In Mashuru, as in the rest of Maasailand, it is men that go for salaried employment and in this case too, share the income with the family at home. Women have therefore, no control over the income where men are in-charge of the household.

### **Other income generating activities**

There are very few employment opportunities in the division. The few that were employed in the formal sector, some have lost jobs through retrenchment. Due to family and ranching or pastoral attachment many people are not willing to move out of the division to find formal employment.

The Limestone mines at Kibini also bring income to the community directly

through employment and indirectly through trade. Most people in the mines are from outside the division and some have their families with them. The income the employees earn is spent in the division therefore, promoting the community's welfare.

The hills at the former Alkarkar group ranch are thought to have gemstones. As in the limestone mining, these activities could greatly influence the economic status of the area. Those mining will improve the infrastructure in the area. Water which is in great demand in these semi-arid lands could be provided as the miners sink boreholes for their use and the community around them. Employment opportunities will be created when mining begins. Other indirect income generating activities would also start eg. trade.

### Views on subdivision

#### Advantages:

	Proportion of respondents-men (%)	Proportion of respondents-women (%)
a) Security and pride of individual ownership of land	70	70
b) Problems of group management are over	100	100
c) Loans for the former group ranches were affecting even those without livestock	62	-
d) Can lease land, acquire loan, sell land at will, have permanent settlement and individual management	100	48

e) Can conserve or grow own grass	60	70
f) Can develop own water and maintain it	64	72
g) No exploitation by those with big herds through their grazing everywhere	75	80
h) No conflicts in grazing area	50	50
i) Control overstocking	75	75
j) Restricted movement will control livestock diseases since those who ignore dipping or spraying to control ticks will remain within their parcels	50	50
k) Can cultivate and harvest more therefore increasing food supply	100	100
l) Can individually take interest on new technology in agriculture	100	100

### **Disadvantages**

a) Cannot graze everywhere at will, that is restricted grazing	70	60
b) Restricting the size of herd for those with large herds	90	94
c) Could not sell, lease or acquire loan using land as security	100	100

d) Solving conflicts in the community the cultural way	78	72
may be difficult especially when foreigners settle among the locals		
e) Can not get technical information as a group	100	100
f) Individual development of infrastructures like water	80	100
may not be easy		
g) Management and organization of the former communal watering points will be difficult	100	100
h) Sale and fragmentation of land will undermine cultural values and as one FGD said, the new comers may dominate the community since they will advance faster that the community they have settled in and may not accept to be integrated in the community	80	50
i) Could not cultivate a large area other than a kitchen garden	100	100
j) Beef production has been affected through reduction of livestock in the market	100	100

### **Decision making**

Division of labour is very specific in Maasai culture. There are duties for men and duties for women. In areas considered feminine, all decisions are made by women and only authority to perform is requested from men. During the focus group discussions, men

could not accept to discuss anything about milk. All lactating cows are left for women to handle. They milk the cows and sell the milk leaving some for use at home. How much milk is produced and where it is sold could only be told by women. Men get involved if women are not leaving enough milk for the calves. Normally only two teats are milked and even those, not completely so that the calf can have enough. Women, therefore, control the milk while men only monitor the process. One of the ladies in one focus group discussions while trying to tell us how rigid the milk sale is followed told of how her husband went to a hotel where she delivers her milk and ate food on credit for the wife to settle when being paid. The lady refused to take the money and went to look for her husband who came very quickly and settled the bill for the food so that the wife could be paid the full amount for milk delivered. It was not possible to have focus group discussions of both men and women together. Women would not express themselves freely in the presence of men. Even in the discussions with women, if a man came all women would keep quiet. In one of the focus group discussions in the former Mbilini group ranch, two widows among those in the discussions expressed the difficulties they encounter while making decisions that are normally made by men or those that involve men. Men make all the decisions in every household except in the case of milk. Sale of hides used to be for women in the past but as sources of income reduce due to the reduction in the number of livestock per household, men have taken over.

### **Measures to be taken for food security**

According to women, to overcome the food security problem, ways of generating extra income have to be encouraged. One way is to create employment. Another way is to improve the production of the range lands so that enough livestock can be kept at all

times. Increased resource scarcity and environmental degradation affects food security. Food security is very dependent upon water supply and water resources are a frequent and underlying cause of disputes, especially when it is scarce. Development of water is therefore the main issue when considering food security. Those people who are along the Nolturesh pipeline utilize the water though illegally in growing horticultural crops very successfully.

It is access to resources like water, seeds, inputs and technology that is important in sustainable food production. If these needs were addressed, food security would be guaranteed. However, access to these resources is out of reach for the local people who require them to make individualization of land beneficial. Policies governing subdivision of land to parcels that are not economically viable for agricultural development should be formulated and strictly implemented. Implementation of such policies would protect women and children who have no voice in maasai culture on matters related to land. Enforcement of policies is important so that there is no failure like in other land use policies. Food security could be achieved if there is a will on the government to effect policies some of which exist but are not implemented.

### **Uses of land**

All the land ownership is freehold and even when Kiboko group ranch is finally subdivided, the individual ranchers will be given freehold ownership. Any member of a group ranch was allowed to be a member of one group ranch only and therefore when subdividing the former group ranches each got one share. Grazing is the main land use. All households have livestock whether theirs or loaned. Women and children look after animals while men go about other businesses in the community.

Cultivation is on the increase but extension services to help those interested in improving technology in their farming practices is not available. The extension officers in the division are not mobile because there were no vehicles in the division and during the research fieldwork (even the Division Officer (DO) had no vehicle). All the members that participated in our discussions, said they had not seen extension staff that would assist them in growing crops at this initial stage when every rancher wants to start cultivation. The people of Mashuru accept that it will not be long before all ranchers will have to cultivate if not commercial for enough food supply. They all have seen their land could be productive from what they see in the former Poka group ranch. In the former Poka group ranch, commercial farming of maize and beans is being practised extensively. Some of the ranchers were thinking of trying wheat farming.

With the division of the ranches all people will settle down in one place. Like in the former Poka group ranch, leasing land will be possible. Those who wanted loans without collateral were being offered very little which could not meet the targeted projects but with the subdivision the required loans may be acquired. In general, land can be exploited in many ways as a natural resource to achieve sustainable food security. People should be sensitized on the land tenure policies that exist to overcome the problem of land sale currently occurring due to the prevailing economic hardships in the country.

### **Problems related to livestock**

Wildlife conflicts occur in all former group ranches. Zebras, gazelles and other related wildlife compete with livestock for the scarce grass. These animals move freely and transmit livestock diseases like rinderpest and tickbone diseases. The diseases increase dipping expenses yet no compensation is given by relevant authorities. Hyenas are a

menace to the small livestock.

The problem of water is acute and only those along the Nolturesh pipeline have enough water. Pan dams dry up a few weeks after the rains depending on the number of livestock drinking from them. Most pan dams are shared among several neighbours. The management is poor for most of these pan dams except for those owned by clans. Seasonal rivers have water in places in the river beds and to get to this water, sand has to be scooped. Watering livestock from this source is time consuming since water has to be drawn physically until the animals have had enough. The young men who scoop the sand are paid for the work. About half of the boreholes do not function and even those that function have management problems. This could be an area which could be developed to have sustainable water supply for livestock and domestic use. Drawing water for domestic use for some people is a whole day's work. All the women groups have water development as their priority project and they say when this is done women and children will use their time in food production. These groups use the income they obtain from selling the steers they fatten to buy iron sheets so that water can be harvested through roof catchment. Some NGOs like Intermediate Technology Development Group (ITDG) have been assisting the community to make manyatta roofs that can be used for water harvesting. The process of achieving this goal is long but they hope to succeed. The water problem will persist until when the government or donors plan and finance water supply. Developing own water is difficult and expensive for a rancher to undertake individually. Ranchers in Merueshi were planning to be connected to the Nolturesh water pipeline but the modality of individual contribution in the installation and running the pipeline was difficult to organize. These problems display the effects of subdivision of the group



ranches. Wild animals perhaps were not felt as a problem when the ranches were communal but now when every one is conserving grass for their livestock, the wild animals are not welcome. Wild animals would also go where there is more grass thus affecting the conserved rangeland. Livestock theft is rare and only occurs with small livestock for the former group ranches bordering Machakos and Makueni Districts.

### **Needs of the ranchers**

a) Tractors at the time when required to maximize the scarce rainfall and avoid late planting. Information from 8 group ranches (62%) mentioned this need as one of the major constraints that affects food security in the changing land use after the subdivision.

b) Proper seeds supply (many people eat all their crops and when planting comes they have no seeds to plant). All women said lack of seeds to plant seriously affected food security. After consuming all food crops stored, especially beans, they have to go to retailers to buy seeds that can be planted and not necessarily certified seeds. Only 25% of men considered lack of seeds for planting as a problem.

c) Introduction of drought resistant crops like millet, sorghum, green grams etc, all respondents felt the government was not assisting them in this area.

d) Avail extension services which have not been given for many years. About 90% of those interviewed said they had not seen any extension officers for many years and some did not know of the existence of such staff except in livestock production.

e) Avail cheap livestock drugs. With distocking that has resulted from the subdivision, few ranchers are willing to sell their animals to purchase drugs. The effects of low purchasing power will reduce livestock production which ultimately will affect availability of food. Over 80% of those interviewed gave this response.

- f) Assist in the development of water. About 60% of Mashuru are not served by the Noltresh pipeline and were desiring assistance from the government in developing water especially water pans (silanga).
- g) Improve and increase livestock markets. About 40% of respondents from former group ranches like Osilalei, Emarti, Ilmamen and Erankau which are a long way to the market in Emali felt new markets should be developed. The transit markets should be developed like the one in Emali.
- h) Avail improved livestock breeds at affordable prices so that all ranchers can acquire them. All ranchers felt that the government had stopped supplying improved breeds through the Kenya Agricultural Research Institute, Naivasha and the breeds from commercial breeders were very expensive.
- i) Improve the infrastructure. All respondents felt proper infrastructure would improve the economic status of the people in Mashuru if developed.
- j) Shortage of labour will arise especially with the changing trends like more cultivation and restricted grazing. About 60% said they could not afford employing casuals.
- k) Loan to improve the quality of the herds and open more land for cultivation. Over 60% of men interviewed felt loans would assist in improving livestock production through acquisition of better breeds and in fencing their parcels. However, 70% of women were not sure loans would be managed well.

Most of the people in the FGD were positive that sustainable food security would be achieved through more cultivation. This they say would be possible since individual ownership allows people to cultivate as much land as they want. Some ranchers were even talking about wheat farming as a cash crop. In addition many ranchers would like to

improve livestock production per unit area through improving the present stock. According to these group, if they can fetch double the income from sale of one unit of livestock, food security is improved. Sahiwal cattle are larger in size than the traditional breeds and are sold for much more. Doper sheep are bigger in size and also mature faster than the traditional ones and would be more desirable to keep. Galla goats are better in many ways than the traditional goats. In general, the trend is to reduce the size of herds but improve the quality of the reduced herds.

### **Women groups**

All women groups start with what they know best, cattle rearing. They contribute a calf or two per member then fatten them for about two years. Calves are distributed to several people in the community to graze them together with theirs, and in this case reducing the cost of employing a herdsman. The fattened steers are then sold, calves for fattening are bought and the balance or profit is invested in the projects they have agreed on. Most of the groups were buy building materials starting with iron sheets (mabati). Next, they plan to buy timber and other materials like nails. All the groups plan to build water collecting tanks when they have supplied all members with the materials. Most groups were in the stage of buying building materials and still on the mabati stage. It is at this stage where those who have no support from their husbands either misuse the mabati or lose them. The more developed or older groups also assist the members with paying school fees, medical expenses, and other pressing needs. The women groups are many and the biggest problem they are facing is management especially those in the initial stages of formation. Embarakuo in the former Arroi group ranch is one of the old women group. A group like Oloshaiki with 13 members also in Arroi has succeeded because husbands have supported

their wives. Emisera women group in the former Osilalei group ranch has built a school which in 1998 had reached class two. One of the women groups in Imaroro through a harambee plus the members contributions have a Posho (flour) Mill that was running well. The group had many plans of expansion in the future but these required major financial implications which they could not meet. Most of the leaders in this group were not educated or had no experience in business and required the support of men for their plans to succeed. Some of the plans were connected to the local politicians and these made progress more difficult as they had little time to help one women group. This group was also looking for donors to assist them accomplish their goals. Another group in the former Mashuru/Imaroro group ranch was trying to organize the members to acquire ox drawn ploughs and high breed seeds to increase food production. Even though the women groups had no plans directly linked to food security, they were caring for the welfare of women to empower them socially and economically. Increasing non-livestock income would enable people to purchase the basic consumer goods and services to supplement the livestock income.

## CHAPTER FIVE

### THE ROLE OF THE PRIVATE SECTOR IN SUSTAINABLE FOOD SECURITY

#### 5.0. Introduction

Development involves men, women and children in every community. Within most social/cultural setups, men are the heads of the households. All the others are under them and each has a role to play. Women play the role of mothers and rarely own livestock and even those with livestock will not have exclusive rights of utilizing the income from them as they wish. However, they play a crucial role in taking care of livestock and marketing livestock products. Women sell products like milk, hides, poultry and crops if any. The income derived from the sale of these products is used in the welfare of the family such as food, health, fees etc. Farm planning is also done with the consultation of the wife or wives. Children not going to school support their mothers in looking after livestock.

The community based organizations have been formed in recognition of the needs of the people. They assist communities realize that they can easily handle some of the difficulties common to all as a group. Foremost, is the realization that, subdivision of the former group ranches has changed the socio-economic status of the whole area. With the controlled grazing, livestock numbers have been reduced but the necessities in life still remain or have even increased. The food security is fragile now than ever. Alternative ways have to be found to increase income generation to fill the gap left by the reduction in livestock numbers. It is this desire that has aroused creation of the group activities which they feel will overcome the effects of the subdivision of the former group ranches on food security. The activities may not be directly linked to subdivision and food security but will in the long run contribute to the welfare of the people.

## 5.1. Men's Group Activities

Men have few or no organized income generating activities unlike women and the youth. Men however form committees which play a role in development matters regarding the former group ranch or the parcels derived from the former group ranch. As stated earlier, for many of these committees existence depends on the state of the group ranch. For group ranches already subdivided, the committees have been dissolved and instead elders are the ones who still guide all the former members on community development matters like development of water, roads and social amenities like school and health centers. They also settle any disputes regarding land and grazing rights. In some divided ranches like Merueshi, the management of community affairs has gone down from clan to families to create more understanding among family members.

In the ranches that are not yet officially subdivided, the committees are still active and pressing for formal subdivision. Local political storms in many cases derail the efforts of some of these committees. Mismanagement, especially of finances has also greatly affected the trust of leaders by the members. In Kiboko group ranch for example, some AFC loan money can not be accounted for. With the disagreements, the infrastructures developed using the loan from World Bank through AFC has run down and are not serviceable anymore e.g. dips. Court cases that arise become endless and expensive.

The divided group ranches depending on how long they have been subdivided have in general improved. Members of those group ranches not yet formally subdivided have continued to put pressure for subdivision.

The major problems affecting men, women and youth alike in the development of

livestock is availability of good breeding livestock. Naivasha used to supply doper sheep and sahiwal bulls but stopped and according to those interviewed does not supplying anymore. The present suppliers of breeding stock are private and therefore charge prices which are out of reach of many farmers. Even those that can afford to pay for them fear losing them after paying so much due to diseases and climatic changes. It is the desire of many pastoralists that the government subsidizes the cost of buying breeding animals for the sake of improving livestock production.

## **5.2. Women's Group Activities**

Women have recently started income generating activities on group basis to augment the low income they obtain from selling livestock products and chicken. The size of these groups differ and most range from 7 to over 40 members.

The smaller groups mostly contribute money that is given to one of them weekly or monthly as is determined by the group. Sometimes the group buys specific items in the home e.g utensils. The bigger groups have more projects they undertake for their members. Some are paying fees for school going children that have difficulties, hospital bills, construction of better houses as many settle permanently on their parcels, ceremonies like weddings and many other social events. Elsewhere in Kajiado district, NGO like ITDG's Housing Project is assisting in organizing and supporting women groups in starting income generating activities like commercial buildings, posho mills etc. The long term goal of most of these women groups is to start some income generating activities in Mashuru especially in the main urban centers like Masimba, Emali and Sultan Hamud. However, the main difficulties as expressed during the interviews is organization as they

undertake more serious ventures. The financial assistance like the one given by ITDG would come in handy to speed-up the planned goals.

The main way of raising capital for all the activities for the groups is through initial contribution to buy young steers for fattening. Some groups like the clan groups in the former Arroi Group Ranch have even given dividends to members after selling (most recent dividend in one of the groups was 7000/= each member) the fattened steers and buying more young steers for fattening. During the interview the group had 34 steers in the process of being fattened. After sale, they will probably start a project instead of giving dividends as the majority of members will decide. Some groups have also started with sheep which after multiplying are sold. With some encouragement and support from qualified people in government and/or NGOs, these women group could change the welfare of their communities.

The commercial activities have in a way created more collaboration between men and women in the family. As men and women sit down to discuss the activities being undertaken, closer ties and appreciation of each other develops. Women dealing with steer fattening have appointed men advisers who oversee especially the buying of young steers and selling of the fattened steers. These women group activities could therefore bridge the gap that exists between men and women in Mashuru. As they become commercial, other non-livestock income generating activities may be started.

### 5.3. Youth's Group Activities

Youth income generating activities are also starting all over. The same aspirations and goals of women groups is shared by the youth. The youth are, however, far from reaching where women are. They are still in the initial stages and may even have more difficulties catching up since few have incomes of their own. Organization problems exist



and support from the same qualified staff in social activities would greatly assist.

#### **5.4. NGOs and Church Organizations assisting in Mashuru Division**

There are many NGOs and churches assisting in many projects in Kajiado district. However only a few have projects in Mashuru Division. The following are some of the NGOs and Churches operating in Mashuru Division: Methodist Church (through Korea), Catholic Mission at Sultan Hamud and Mashuru center, Free Pentecostal Fellowship in Kenya (FPFK), World Vision, Compassion International and New life mission. These organizations and churches aim at improving the living standards of the people. Areas they cover may not be directly related to food security or subdivision of the group ranches but deal with aspects that in the long term will improve the living standards of the local people and therefore food security. Some NGOs in other divisions in Kajiado District are developing and managing irrigation schemes for the people. In Mashuru, the New Life Mission near Mashuru center grows vegetables through irrigation and supplies the residents with most of their requirement for vegetables. If other missions or donors can provide these services, part of the required food would be available locally. The New Life Mission was also teaching the locals gardening and at the same time sensitizing people who were not interested in farming to try gardening. The residents of Mashuru were being supplied with water from the mission's borehole. The other services rendered by the other NGOs and Churches in education and health are equally important in that education is required for development especially with the technological and economic changes taking place. On health, when people are healthy, they can concentrate on food production and other essential duties that would improve food security. According to ASAL, the most common diseases are respiratory infection and malaria. These two can be fatal and can lower productivity of a community. Staff from each NGO or Church was interviewed

separately.

#### **5.4.1. Methodist Church**

The methodist Church has 7 churches and with every church a school and health clinic. Only one at Makutano is a full primary school where the government aids by providing teachers. The other schools at Oltotoi, Lamilo, Kunju, Nembuya, Noonkabolo and Sultan Hamud have nursery school and the lower classes one and two. These cannot have government support due to low enrolment. The pupils after class two may be able to walk a few kilometers to the nearest primary school. In addition to school programmes, a mobile health clinic at cost sharing is operated through all the church sites. Where the Pastor is staying at Makutano, a garden has been developed with a hope that those with a water source nearby could start the same to improve food security. It is possible to easily reach the community with this garden farming since a small commercial center is quickly developing just outside the church compound. The church believes education is the key to any development for the welfare of the community and that healthy people would spent their energy to produce food and generate income for other needs.

#### **5.4.2. Catholic Mission**

The catholic mission has a church in Mashuru which is planning to construct hostels for girls at Mashuru Primary and Secondary schools. It may also build classes where the girls could study and finish homework in the evenings and a dinning hall to serve those in the hostels. They have four nursery schools in the area. During the holidays the mission organizes youth seminars. At Sultan Hamud, the mission runs a polytechnic which trains youth on handcraft carvings and furniture making. Skills gained after technical training will enhance chances of getting employment for better livelihood

### **5.4.3. Free Pentecostal Fellowship in Kenya**

This church started a project that rehabilitates street children from Urban centers in Mashuru Division. The children are taken care of and sent to the primary school neighbouring the church at Emali. The church operates a medical clinic at the church and had previously tried to reach the nearby rural areas at cost sharing but the project did not continue for long. Only the clinic at the church compound was operating. The aim of the church is to give the people a chance to lead a normal and productive life.

### **5.4.4. World Vision International**

World Vision in Mashuru Division participates in sponsoring needy children in several schools in the division. Those sponsored by this NGO also receive support in other areas like clothing, health and food.

### **5.4.5. Compassion International**

This NGO operates in the same line as World Vision, sponsoring needy children in several primary schools in the division. Those sponsored by this NGO also receive support for clothing, health and food.

### **5.4.6. New Life Mission**

This mission has several projects benefitting the community in Mashuru Urban Center. The projects already operating are:- a nursery school, an orphanage for street kids who go to the local primary school after rehabilitation, provision of water from their borehole to the community and schools especially when the borehole meant for use in these places broke down. The mission has offered water for the community's livestock as long as they construct troughs outside the mission area. For the above offer, the community has not been able to construct any troughs and continue to suffer especially in the dry season. The mission was irrigating the alluvial valley of river Eselenkei (which

is seasonal) using the borehole water. Mashuru urban center and the neighbourhood obtains most of their requirements for kales, tomatoes and other vegetables from the missions farm. The future plans of the mission is to start a polytechnic to teach the local school leavers appropriate technology skills. It also plans to teach the local community farming techniques like growing onions, kale, beans, maize and other crops with the aim of improving food availability and generating income. They also plan to start a tree nursery to sell seedlings to the local community at cost sharing basis but free to the local schools.

## CHAPTER SIX

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 6.0. Summary

This research involves the study of the effects of subdivision of the group ranches on sustainable food security. It looks at the actions of man upon the elements of his physical environment to achieve his goal. His reaction with his environment, constant modification of the restraints and scarcities, his work on the available resources spell social and economic changes and progress. The society is continually changing as it strives to reach a satisfactory condition but the forces of change persistently deviate it of course. The centrifugal effects of diminishing returns from increasing intensity of land use and mounting economic changes become manifested in the growing extent of spatial spread. The change of one land use to another may not take place smoothly in an orderly manner but perhaps haphazardly. Unquestionably cultural and institutional values will be affected.

This research investigated the effects of subdivision of the group ranches into individually owned parcels. Attention was given to the ecological and economic viability of the new individual ranches and how these would affect the food security. Subdivision of the original group ranches does not end there. The resultant parcels after subdivision are further subdivided by the owners into yet smaller sub-parcels. If these already smaller parcels from division of group ranches are further subdivided into smaller parcels, the issue of viability becomes critical. Mashuru Division as a whole is in the arid and semi-arid lands (ASAL) and developing small land parcels will not be cost effective.

The traditional Maasai pastoralism has been nomadic and therefore they were constantly on the move during the dry season. During the wet season the members and

their livestock regroup on the wet season pastures. This is a method of utilizing the scarce available resources optimally. In the 1960s, the government changed the land tenure system to group ranches where ownership of land was vested on the group. The packages offered to assist in transforming nomadic pastoralism to ranching were favourable and were readily accepted. However implementation of the group ranches was not participatory and considering the people had no experience in ranching, most ranches failed. In this regard all the group ranches favoured individual tenure.

Poka group ranch was the first to be allowed to subdivide after fulfilling the conditions set by the government which were:

- 1) Repaying any loan owed to the Agricultural Finance Corporation.
- 2) Resolve the issue of registration of grown up young men
- 3) Convening of a general meeting to dissolve the group ranch and
- 4) Obtaining official permission from registrar of group ranches for dissolution of the group ranch (Government of Kenya , 1983).

All former group ranch members have title deeds for their parcels. The other group ranches have since followed and all except Kiboko have subdivided. Among those that have been subdivided, some have titles already for the former members while others are still settling disputes before the subdivision can be official. Only Kiboko is still a group ranch due to political and legal complications in the constitution of membership.

The number of livestock has reduced with the subdivision and ultimately will affect the food security. Many Maasai have realized the change and have tended to diversify and intensify. Diversification includes the change in the composition of the their herds. A remarkable development has been the increase in the importance of small stock. Introduction of more rainfed crop farming is being practiced in some former group

ranches like Poka and Mbilini. The intensification of the Maasai economy is another option implemented by many Maasai. One of the opportunities is to improve beef and milk production through improving and introducing new breeds. Sahiwal bulls have been brought to improve local breeds and in some cases introduction of new breeds. On small stock, Doper sheep have been introduced to improve local breeds. Gala goats have also been introduced. Obstacles to the introduction of these breeds was said to be high purchase price, non-availability and vulnerability to diseases and drought. The small stock which are becoming more important are being upgraded more than for cattle. This may be due to the cost of the breeding stock. A sahiwal bull costs between KShs. 40,000 and 120,000. To small ranchers with few cattle, the cost is too high and may not be realistic. Many Maasai heads of households are turning to occupations outside the livestock sector. The most favoured is wage employment in public and private sectors. The future of the Maasai in the study area and else where in Kajiado will mainly depend on what happens to their land.

Increasing land resource scarcity and environmental degradation has undermined food security. Food security for instance is very much dependent on water supply. Water resources are frequently the underlying cause of disputes, especially when scarce. Population growth is probably the single most important factor influencing food security. Other important factors that influence food security are climatic change, poverty, environmental degradation, management of resources and diseases. Production of more food than is required is therefore the major goal.

## **6.1. Conclusions**

A time has come when the Maasai can not continue their normal pastoralism. The

Maasai like other pastoralists once called "the lords of the plains", roaming with their large herds on extensive pastures are now accepting that the land resources at their disposal have been cut down. Nomadic pastoralism has ceased and ranching has taken over. After subdivision, the resultant ranches are on average 200 acres in size. For normal ranching, this size of land parcels could sustain only a small herd. Large herds would degrade the rangeland thus lowering its productivity.

The increase of the Maasai population in the past was slow. Not any more. Population growth rate at present is one of the causes of the economic problems of today's Maasailand. Drought, rangeland degradation, reduced access to and control of land and an unfavorable hostile political and economic environment are other causes of problems for people living in Mashuru and in the other semi-arid and arid areas. The Maasai diet of milk, meat and blood can no longer be sufficient. Rutten (1992) says that after 1984 drought, cattle wealth dropped to a low figure of less than three cattle per person. The low number of livestock will inevitably bring about the introduction of other land uses especially crop production to improve sustainable food security.

The subdivision of the group ranches has been accepted by most people except those who owned large herds since they had lost the liberty of grazing freely. People said they enjoy security and pride of individual ownership of land. The problems of group management of group ranch affairs was over. Having land title, one can lease land, acquire loan, sell land at will, have permanent settlement and individual management which overall would improve income generation and thus improve the food security. Overstocking could be controlled as people keep only enough livestock they can sustain on their land. Individuals can develop own water and maintain it avoiding many conflicts that arise from the use of water. However, individual development of water can not be



realized in the present economic situation. Restricted movement will control livestock diseases since those who ignore dipping or spraying to control ticks will remain within their land parcel. Before the subdivision, members of the group ranches could only have gardens as free cultivation was not permitted. Individual ranch owners can now cultivate as much as they wish and harvest more therefore ensuring sustainable food supply.

The problem, however, is that cultivation remains despised and foreign to the Maasai. In addition, land is fragile and would be exposed to degradation unless soil conservation measures are introduced concurrently with cultivation. Sale and fragmentation of land will undermine productivity and cultural values and as gathered from the FGD, the new comers may dominate the community since they are advanced technologically than the community they have settled in. They may not accept to be integrated in the community. Solving conflicts in the community the cultural way may be difficult especially when foreigners settle among the locals.

Lack of skills in the management of the individual ranches created will affect generation of income and thus reducing availability of food. The Maasai have been pastoralists all their life and their experience is in this farming system. Pasture management has always been moving from wet season grazing areas to dry season grazing areas. Most of the mature people in Mashuru are not educated.

Education is the key to development and leaders could use it to enhance management skills to farmers. Skills in the management of ranches could be taught. Efforts must be stepped up to foster self-reliance and community participation as well as address the basic causes of food security problems and malnutrition. These causes include wide-spread poverty, inadequate food and water supply, social and gender discrimination, inadequate education, sanitation, health and lack of social services. There is need to

improve information management on what needs to be done on household food security. People may suffer temporary food shortage, due to production failures, seasonal fluctuations, economic and market disruptions but when this is monitored, food availability would not be critical. There is need to strengthen the technical capacity of different extension workers to facilitate the improvement of community production systems.

There is a need to create awareness so that ranchers can individually take interest on new technology in agriculture to improve food production. Use of proper high breed seeds and at the right time of planting can improve food production per unit area. Destocking though not practiced, could be easily controlled at group level but with the subdivision, group approach is not possible any more. Individuals will control the stocking rate according to the forage demand of their animals. Keeping few improved livestock breeds like galla goats, doper sheep and sahiwal cattle can generate more capital even when the numbers sold are few. Pasture management should be encouraged through fencing and reseeded. Introduce credit facilities that are flexible. Use of modern technology could be easy to organize at individual level and the initiative should start with the planners. Some individuals have for example received animal drawn ploughs but some of them have not used them properly because other problems come up like unavailability of certified seeds for planting and no extension service to show them the agronomical practices that could improve food production. Encouraging organic farming is necessary to maintain soil fertility while avoiding extra costs on the purchase of fertilizers. Many church groups and organizations are encouraging agroforestry. During the FGDs in Mbuko, many individuals said they had tried planting of trees but termites destroyed them. In the dry seasons termites would eat the roots of the planted trees making them dry-up

before the dry season is over.

Since leasing and selling of land which is freehold cannot be controlled, those interested in leasing land, should be encouraged to undertake long term leasing with soil conservation packages. Information on those selling land on the market value should be available to overcome cheating and exploitation. Individuals should not be allowed to sell all the land to protect their families. During the research study, a few people had already sold out their land and were landless. Introduction of other income generating activities and credit facilities could make the individual ranchers sell the livestock to invest, pay the loans and develop their ranches.

There were utilities that were communal like boreholes, dips, water pans, etc. before the subdivision and these had been used to promote pastoralism and controlling livestock diseases. These infrastructures were controlled by the management of each group ranch and though misused, there was a forum where complaints could be made. Planning in the past has been done at group level both in the national level and in the local level. Changing the approach to individual level will therefore require greater initiative and commitment on the part of the planners; government, parastatals, NGOs or other stakeholders. Most former communal infrastructures like boreholes were not serviceable. Some of these structures were on private land and were not communal any more. The problem was lack of organization in the running of these utilities.

Each rancher has been seeking to develop own water facility like silanga (pan dams) and these has not gone far since the making of silanga is expensive and only a few organizations like ASAL have equipment for this task. Water development could still be organized at group level by the planners. They could create awareness on community organization and initiatives in water development for groups or clans than individually.

Water harvesting could be encouraged at individual level. There are some NGOs in Kajiado that are encourage permanent houses with mabati (iron Sheets) roofs or manyatta roofs that could be used to harvest rain water. The developed water sources should be protected by fencing and allowing vegetative cover on embankment. Those near the Norturesh water pipeline from Mt. Kilimanjaro could be assisted in organizing themselves in groups to be connected to this water. Organization should not only include contribution in connecting but the running also. When the ranchers participate in sourcing the water, they would also help control illegal use of the water.

It is people that settled in this type of ecology and have therefore developed coping strategies who have managed to survive. Whatever changes that take place, the environmental factor has to be considered because the environment can not be easily changed but people can adapted to the environment. The changes taking place in Mashuru and the other group ranches in the ASAL that have been subdivided have to consider the features of the environment and the cultural arrangement by which the environment is exploited. It is in the light of this that the local people have to fully participate in the changes for it is them that have culturally adjusted to the ecology in the past. It is foreign systems though in good faith that have accelerated the food security problem.

## **6.2. Recommendations**

As stated earlier, food security would be achieved not only through food production but also having the power to purchase food. The recommendations based on producing food and generating more income at household level are as stated below:

- (a) The government should formulate/enforce land subdivision policies to maintain economically viable land parcels considering the marginal potential of the land. Thus there should be a minimum acreage per household to control fragmentation of land that may

not be economically viable in the ASAL. All group ranches which had been subdivided had average parcels of about 200 acres. Some of the new ranches had already been subdivided further and sold out to willing buyers. What is required after the subdivision is to assist in the management of the current parcels for maximum benefits. The coping strategies and mechanisms that have made culture in the past adapted to the ecology will greatly be affected. Strategic grazing will have to change to planned grazing where paddocks will be established.

(b) Encourage modern farming techniques and crop husbandry among the ranchers while considering environmental conservation. In the key informants interviews and the focus group discussions, respondents said that proper skills will be required to manage the ranches. The knowledge they have was for pastoralism and not for ranching. Crop and animals compatible agriculture should be encouraged. There are many drought resistant varieties for common crops like maize, beans, millet, sorghum, green peas, cow peas and many others which when planted as recommended would give better yields. Draught animal power for land preparation and transportation if adopted would increase food security. Rain water harvesting and watershed management techniques would also improve crop productivity. Introduction of agroforestry such as leucaena and acacia senegal would provide alternative crude protein source for livestock. Pasture management through conservation, reseeding with available local grass seeds, pasture harvesting and storage should be encouraged. Improvement of the local livestock breeds for higher productivity should be encouraged. Other than using the exotic breeds for improving the local breeds, these breeds could be introduced direct for faster returns. The exotic breeds were very expensive and many were not affordable to most of the ranchers. Most respondents felt that the government could assist in supplying breeding stock through KARI's farm in

Naivasha. In the past Naivasha used to supply the required breeding stock but stopped and left the pastoralists in the mercy of private farms. Organic farming could be encouraged to improve mainly soil water retention capacity and maintain soil fertility.

(c) Each of the former group ranches had communal infrastructures like dips, boreholes, pans dams among others which the more independent maasai ranches found difficult to manage. During the research, about half of the boreholes were not serviceable. In the key informant interviews and focus group discussions it was found out that each rancher was in favour of developing own water source. Since developing individual infrastructures would not be possible considering the investment cost, group ownership of the essential infrastructures is still the best option. Since many ranchers have collateral to acquire credit facilities for the purpose of improving their ranches, the government could assist farmers overcome the fear of losing their land incase of failure to repay loans. The experience of world bank loan through Agricultural Finance Corporation used to establish the group ranches almost sold their land if it had not been for the intervention of the government. Credit facilities like the former Guaranteed Minimum Return (GMR) could be appropriate if re-introduced which safeguarded farmers against failure to repay loans after conditions beyond the farmers control caused production failure. It would take care of production failure due to drought.

Before any assistance is taken to an area like Mashuru, ex-ante research should be carried out by social scientists to lay the ground work where the cultural practices of the local people are accomodated in the programmes. The group ranch concept was good but since the pastoralists were not properly consulted before, it still remained foreign to them and that is why it did not succeed.

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## **Appendices**

### **Appendix 1: Leading Questions for Key Informant Interviews**

#### **ASAL Kajiado:**

1. Kajiado District falls in the Arid and semi-Arid Lands (ASAL) and therefore within the mandate of ASALs programmes. What does ASAL consider to be the major problems associated with sustainable natural resource use in the district?
2. How can these problems be solved?
3. According to ASAL, what are the problems associated with subdivision of the group ranches?
4. How do you think land subdivision will affect livestock production and management?
5. What are the major problems facing ASAL programmees?
6. How do you propose the community could be assisted to improve the food security problem?

#### **To men, women and youth development groups:**

1. What group do you belong?
2. Is your group based on clan, family or free membership?
3. What activities are you involved in?
4. Who manages your the activities?
5. Are the activities you are undertaking going to improve food security?
6. What problems are you encountering?
7. How do you plan to solve the problems?

#### **NGOs, churches and companies:**

1. Which organization or church do you belong to?
2. What activities are you involved in?

3. Who manages your the activities?
4. Are the activities you are undertaking going to improve food security?
5. What problems are you encountering?
6. How do you plan to solve the problems?

## **Appendix 2: Leading Questions in Focus Group Discussions**

1. What types of food are consumed by the maasai in Mashuru Division?
2. How do they acquire it?
3. What is the general level of household income per month?
4. Sources of income:
  - Sale of livestock No. and What type?
  - Sale of milk (liters)?
  - Sale of other livestock products like hides, manure?
  - Lease of land?
  - Sale of part of the land?
  - salary?
  - Business?
  - Sale of Agricultural Produce?
  - Other sources of income like charcoal burning?
5. About how much is spent on food?
6. Do plan for continuous supply of food to your families?
7. What are the plans on food security in the community?
8. Is there a communal plan or each individual plans separately?
9. Type of land ownership:
  - a) Group Ranch?
  - b) Communal clan ownership?

- c) Individual parcel?
  - d) Others (specify)?
10. What are the advantages of your type of ownership?
  11. What are the disadvantages of your type of ownership?
  12. How do you value your land?
    - a) Provision of good pasture and water to livestock ( )
    - b) Cultivate for household food supply ( )
    - c) Title deed for use in acquiring loan ( )
    - d) Settlement ( )
    - e) Others (specify)
  13. What do you think is going to be the impact of land subdivision?
    - a) Going to restrict free movement of livestock during the dry season
    - b) Restrict the size of the herd, small stock and big stock
    - c) Lead to permanent settlement
    - d) Increase sale of land
    - e) Loss of water source for communal livestock watering
    - f) Enhance individual initiative in land use and management
    - g) Provide title deed for guaranteeing loan acquisition
    - h) Is it going to break the cultural social structures that have always existed
  14. Which group ranch do you belong to?
  15. Do you have a share in any other?
  16. Which livestock are preferred and why?
  17. What are the major problems you face in managing your livestock?
    - a) Wildlife menace
    - b) Drought



- c) Land Degradation
- d) Lack of adequate grazing and water resources
- e) Cattle rustling
- f) Diseases
- g) Poor marketing facility
- h) Lack of monopoly in livestock pricing
- i) Controlled livestock movement

18. How do you think these problems can be solved to ensure food security for the family?
19. Is there enough food for your family?
20. What steps are you taking to ensure the family has access to food all the time?

