

**“THE EFFECT OF PASTORALISM ON THE NATURAL RESOURCE” CASE
STUDY OF KOLLOA DIVISION OF EAST POKOT DISTRICT IN KENYA**

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DECLARATION

I **KAPTUYA.L. NELSON** (BEM /4540/31/ DF) hereby declare that this dissertation is a result of my own findings and has never been presented to any educational institution for any award or its equivalent in any University. Unless otherwise stated.

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DEDICATION

This book is dedicated to my family, relatives, friends, well wishers, and other naturalists, who sacrificed a lot of their time, monetary assistance, advice and encouragement for my education up to university level.

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ABSTRACT

The part played by nomadic and pastoral communities that affect the pastoral resources in the ASAL area of Kolloa division, East Pokot district in the formally Baringo district in rift valley province in Kenya. The factors in question are like pastoral areas, some of the mitigation measures used before in the study area, and the possible recommendation to reduce the depletion of these pastoral resources in the ASAL areas. Methods used in collection of data are generally survey research design that includes questionnaires interview and photographs and direct observation and literature review. The findings came up clearly and strongly that some pastoral activities and way of life style have contributed mainly to resource depletion through watering of animals, animal treatment, pasture management, grazing of cattle, breeding and poor technology. All these were clearly seen on the water quality and quantity vegetation cover and type, palatability of the forage and pasture and also the quality and quantity of the animal products like milk, meat, and skin/ hides. Erosion on the fields is clearly seen as was reported. In summary all the above issues could be there through natural processes but they have been catalyzed by the man's intervention through applied modern technology of resource maximization and utilization to meet his/her needs/ wants. Some of recommended mitigation measures are regulating, controlling the livestock marketing, numbers and movements.

CHAPTER ONE; INTRODUCTION

1.1 Background to the study

Pastoralism is one of the major land uses in the Northern Kenya, with approximately 55% of the land area used for grazing stock (pastoral leases plus some Aboriginal land). The pastoral industry is generally based on grazing cattle on native pastures, although introduced pastures are used in small areas. Early attempts to graze sheep were unsuccessful because of climatic and other problems, and buffalo are farmed in small areas of the northern floodplains.

Ecologically, the arid and semi-arid areas of Kenya are characterized by the steady erosion of the natural resource and social asset base from which households and communities construct their predominantly pastoral) livelihoods. This is further exacerbated by seasonal variations or shocks, such as drought. Pastoral livelihood systems have adapted to these ecological patterns through the development of highly resilient production systems: The nature of pastoral livelihoods demands a high degree of mobility guided by the need for access to water and grazing land without deference to state borders.

These systems have been significantly eroded, as a result of colonial and post-colonial legal definitions of land ownership and resource use. The increasing emphasis on individual rather than communal property rights has led to increasing restrictions on population movement and grazing rights, the foundations of pastoral economy, which has in turn undermined historic coping strategies and increased the vulnerability of pastoral communities. As a result, communities no longer retain the capabilities, activities and resources required to secure a minimal means of living.

1.2 Statement of the problem

The effects of pastoralism on Natural Resources like water, land, vegetation, minerals, livestock and wildlife in Kolloa division East Pokot district is worthy investigating. The Rift valley province of Kenya has been adversely depleted by the pastoralist's way of life and yet the stakeholders seem not to show any concern. Pastoralism in this region inhabit an arid dry land terrain that does not support continuous crops cultivation and cannot sustain large tracts of land is essential to pastoralist's production and it was prized prerogative of the people in the pre-colonial period.

Today majority of the people in kolloa division are engaged in pastoralism with less concern to the natural resources. The questions for investigation are: What are the patoralism activities in Kolloa division? How has the pastoralism activities led to natural resource degradation in Kolloa division? The need to provide answers to such questions is the basis of this research and constitutes the problem statement of this study.

1.3 Purpose of the study

The purpose of the study is to establish the effect of pastoralism on the natural resource in kolloa division of pokot district in Kenya

1.4 Objectives of the study

- i. To identify the patoralism activities in Kolloa division
- ii. To determine how the pastoralism activities have led to natural resource degradation in Kolloa division
- iii. To suggest recommendations for natural resource conservation in Kolloa division

1.5 Research questions

What are the pastoralism activities in Kolloa division?

How has the pastoralism activities led to natural resource degradation in Kolloa division?

What are the recommendations for natural resource conservation in Kolloa division?

1.6 Significance of the study

1. The study will be of great importance to policy makers in that it will help them to come up with appropriate measures of conserving the natural resources on pastoral areas.

2. The academicians will benefit from this study in that it will act as a stepping-stone for further research in the area of natural resource management

CHAPTER TWO: REVIEW OF LITERATURE

2.1 Introduction

This chapter deals with what other scholars have written about the impact of pastoralism on the natural resource. The study highlights on the following themes; Lifestyle of Pokots of Kenya, Land tenure policies in Pokot district, Vulnerability to climatic variability and Competition with wildlife

2.2 Lifestyle of Pokots of Kenya

Woodward (1996), states that the Pokot people are a community inhabiting the Pokot District in Kenya and northern parts of Baringo District. East Pokot District is largely a dry land area experiencing erratic climatic conditions and difficult terrain.

According to Security and Information Center-(2001), traditionally, the Pokots are nomadic pastoralists whose Lifestyle is rapidly changing to sedentary mixed farmers, especially in areas where conditions permit. Like many other semi arid areas in the country, the area has been experiencing population increase both human and livestock. The harsh climatic conditions over most of the area and difficult terrain make the area inaccessible. Traditional pastoral lifestyle is still practiced by most of the community members. The climatic conditions, terrain and traditional lifestyle practiced make the area impossible to cope with increasing population in terms of sustainable resource management and use. The area is prone to periodic droughts accompanied by famine and poverty. Land degradation is evident over most places further threatening the livelihoods of the local people.

2.3 Land tenure policies in East Pokot district

Mkutu (2003) indicates that the majority of pastoral land resources are held under a controlled access system, which is communal in form. 'Communal' land tenure relates to that system of tenure in which the tribe or clan or a group has access to land. Tenure is thus a social institution: a relationship between individuals and groups or tribes consisting of a series of rights and duties with respect to the use of land.

Mkutu (2003), further points out that from the 1950s, most African countries tried to introduce a form of private land tenure. There were attempts to integrate pastoralists into the private property system through the granting of private group title to limited areas. Having group title gave security to the groups but it also circumscribed their ability to maintain reciprocal relations among their own communities and with others. It also reduced their access to critical grazing and water resources outside the group ranch boundaries

The enforced changes in land tenure altered the way people related to land as a resource and this created uncertainty and tension. The customary regime governing pastoralist land recognized the communal use of land and was in contrast to the privatization and individualization of land advocated by state legislations. As result of increased levels of privatized land, pastoralists' traditional grazing patterns and coping strategies have been disrupted. This has resulted in reduced and fragmented grazing areas and increased the impact of droughts and scarcity (Mkutu 2003).

It should be noted that the existing policies and legal institutional frameworks were put in place in the 1950s and 1960s when the ratio of land to population was greater. The major concern of policy and law was the regulation of 'orderly' use of land. The tension

concern of policy and law was the regulation of ‘orderly’ use of land. The tension between state legislation and customary land regimes and displacement of pastoralists are now leading to violent conflict among pastoralists, ranchers, sedentary farmers, and state security forces

2.4 Vulnerability to climatic variability

Anna (2003) observes that climatic change and environmental degradation have led to food shortages and increased pressure on available land and water resources. Climatic conditions play a major controlling role in a pastoralist’s life because rainfall affects the availability of pasture and water. Droughts have a long-term impact on the people in the Horn of Africa. Djibouti, Eritrea, Ethiopia, Somalia, Sudan and Kenya all provide tragic examples of how devastating droughts can be.

Anna (2003), further notes that there have been six major drought periods on the African continent in the last three decades. Recent droughts in Somalia, Ethiopia and Kenya resulted in the loss of lives and in the decline in livestock population by 60 to 70 percent in some areas. In Kenya, huge losses of livestock were expected in the first three months of the year 2001 following a serious drought. The drought arose from failure of both short and long rains of 1999/2000 seasons, and resulted in serious shortage of water and pasture for the livestock in the hard hit districts of Northern Kenya.

In the period ending October 2000 approximately 1,725,000 cattle, 2,184,000 small stock and 8,000 camels valued at 12.2 billion shillings (approximately US\$ 1.5 billion) were certain to be lost without short-term interventions (ASAL, 2000). While it is expected that in some situations people will be able to recover from these losses over several years,

Mukhisa (1998), points out that in former times, pastoralists had strategies for coping with the pressures caused by vagaries of nature. The pre-colonial coping strategies were an integral component of the pastoralists' socio-economic system and included: leaving land fallow; splitting families to better manage family herds; pooling resources; migration; and trade ties with traders and businessmen. These strategies were based essentially on the premise that control of a variety of resources was needed to provide access to pasture and water at different times of the year and particularly during droughts. Government policies have consistently sought to alter, rather than build upon, the pastoral production and coping systems. The failure to appreciate the pastoral logic has meant that development objectives have been defined on the basis of erroneous assumptions and the policies, which have been implemented, have disrupted pastoral economies

2.5 Competition with wildlife

Ruto (2003), indicates that access by pastoralists to water and pasture, especially during the dry season, has been greatly hindered by the excision of game reserves and national parks from pastoral areas. This excision policy, which started in the 1950s, has taken up large tracks of land and crucial sources of water and dry grazing land. The pastoralists are perceived as a major threat to the ecosystem as their activities are seen as leading to over-grazing. As a result, pastoralists have been evicted from land. In Karamoja, 25 percent of land was gazetted by the colonial administration. Only now are environmental proponents recognizing, not only that pastoralism is compatible with land use, but that pastoral communities and wildlife can benefit from resources within these gazetted lands.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

This chapter focused on the research design used in the study, area and population of study, sample and sampling design the researcher the used, research instruments, data analysis and the problems encountered during the study. This study employed both qualitative and quantitative survey approaches. The qualitative design was used in order to describe the phenomena in its natural setting. The quantitative approach was used to show the trend of responses about the study.

3.2 Research design

The research design adopted in this study was a case study research design. Case studies emphasize detailed contextual analysis of a limited number of events or conditions and their relationships. The researcher employed both quantitative and qualitative research methods. The quantitative method was employed to generate empirical data to fill the gaps for that information that was left out during the qualitative approach. This study aimed at describing the objective of the research.

3.4 Study area

The research was limited to Kolloa division of Kenya alone in order to have a critical analysis and evaluation of the impact of the effect of pastoralism on the natural resource.

3.5 Study population

The study was based on the pastoralists of Kenya. The respondents selected included; officials from ministry of environment, local leaders and the pastoralists.

3.6 Sample size and procedure

The sample size was a total of one hundred ten (110) respondents sampled from the study population. The sampling was random in order to avoid bias. The 110 respondents were selected from the various categories of respondents as seen in the table below:

a) Table 3.1 showing category of respondents

b) Category of respondents	Number
Officials from NEMA	5
Local leaders	5
Pastoralists	100
Total	110

2) 3.7 Data collection methods

Using quantitative and qualitative methods, data was collected from both primary and secondary sources. Secondary information was gathered from the available literature. This involved reviewing numerous documents like textbooks, journals, newspapers, national and international policy documents, reports and bulletins containing information about the impact of cross border cattle rustling on international cooperation. Primary data was collected using self-administered questionnaires, in-depth interviews, focus group discussions, observing people and phenomenon documentary review.

1 In-depth interviews

The researcher carried out personal interviews, direct verbal discussion and interaction with the respondents in order to collect data. The objective of the interview was to bring some preliminary issues to the surface so that the researcher could determine what variables need

er in depth investigation. The questions were planned in advance and the researcher used an view guide to guide the interview and a lot of probing was done. Interviews have the ntage of the researcher being able to adopt the questions as necessary, clarify doubts and re that repeating or rephrasing the questions properly to understand the responses. Face to interviews also allow the researcher to notice any discomfort, stress or problems that the ondents may experience, nervous tapping and other body language unconsciously exhibited also be noticed which would be impossible to detect while using other methods.

2 Questionnaires

en ended and closed questionnaires were administered to respondents in the different gories. The questionnaires were administered to key informants who included NEMA ial, local leaders and residents of the area. They were designed and sectioned according to themes of the study. Questionnaires helped the respondents to read through the question ral times and understand in order to give the most suitable answers. They are popular with archers because information can be obtained fairly, easily and the questionnaire responses easily coded.

3 Observation

s method was mostly used to gather information about the non-verbal behavior. The antage of the observation method is that the research can be conducted in a natural ironment rather than in an artificial setting, and can easily be conducted over time. ervation studies help to comprehend complex issues through direct observation and then if sible, asking questions to seek clarification on certain issues. The data obtained is rich and ontaminated by self-report biases.

Documentary review

umber of documents containing relevant information were reviewed with emphasis on the
t of pastoralism on the natural resource.

Focus group discussions

researcher also used focus group discussions to collect data. This was by the help of focus
p guide, which were a lay out of items that were in line with the topic of study. Focus groups
sessions are generally considered to be qualitative rather than quantitative method and
rally do not yield results suitable for statistical analysis.

Data analysis and quality control

qualitative data, the researcher identified similar responses at the end of each day of data
ction and they were coded according to the themes of the study. Then the tentative themes
identified and code categories were given under each theme. Important themes from the
ected data was also identified and supplemented by information given by the interviews.

qualitative data responses were collected from; in-depth interviews focus group discussions
unstructured questionnaires. Qualitative analysis entailed review of the published work,
spapers, magazines and journals. Quotations from both secondary and primary data with
vant information to the findings were included to substantiate findings. During analysis,
ondents' expressed feelings; attitudes, ideas, and statements were put into consideration. The
vers from different informants were compared to identify similar responses and these were
l in the presentation of data.

quantitative analysis, data collected was elicited, coded and entered into the computer. It was
analyzed using the statistical package for social sciences (SPSS), a computer program. Data

ts was presented in tabular forms, graphs, pie charts including the percentages of
mation got from the field according to the different themes of study.

scope of the study

study will focus on the part played by pastoralism towards depletion of natural resources,
a lot of emphasis on their way of life, pastoralism activities and their reluctant effect on the
ral resources, and be able to come up with ways to suppress these effects.

Limitations of the study

A number of limitations were encountered; among these was the misconceptions people
normally have about people carrying out research that they have a lot of money to give
out to respondents.

Other informants feared to release information, which problem was solved by assuring
them that the researcher was carrying out the research for purely academic purposes and
by assuring them that the information given would be treated with confidentiality and no
body's name would be mentioned during report writing.

Informants did not fill in the questionnaires within the expected time because they were
busy on other things however, being patient with them solved this problem. the funds
were limited for the intended work. This limitation was tackled however, by seeking
financial assistance from relatives and friends.

Time was also another limitation to the study. This was because the study involved
movement throughout the sub-country, which necessitated incurring costs, and this was
time consuming. 5. Transport on the study area also posed a problem, but the researcher
hired a motorbike to facilitate the movement.

CHAPTER FOUR: FINDINGS AND DATA PRESENTATION

Introduction

This chapter focuses on the findings of the study from the field

Impact of pastoral land use on the ecology of East Pokot District in Kenya

Research findings reveal that Pastoral land use has had substantial impacts on the ecology of many areas of the Northern East Pokot District in Kenya. Grazing by cattle or sheep causes significant changes to the structure and composition of native vegetation. This habitat alteration in turn has impacts on native fauna because of changes in the availability of resources such as food and water. In areas of heavy use like in Kolloa division, the effects of trampling, soil erosion and nutrient concentration (through urine and faeces) may also be evident.

Research findings also reveal that the impacts of grazing on vegetation arise because of selective grazing by stock (where "preferred" species are selected and may be eaten out) and differential sensitivity to grazing between plant species.

Research also shows that a typical response to heavy grazing is a decrease in the frequency of cover of palatable perennial species and an increase in unpalatable perennials or annual species.

Prolonged overgrazing also results in the removal of most perennial grass species and a dominance of annuals that make the area susceptible to drought and erosion.

The researcher also observed that changes in the structure and composition of the ground layer due to grazing may be temporary and readily reversed following good rainfall, or by reduction in grazing pressure. However, prolonged overgrazing results in a transition to another vegetation type, from which a return to the desired land condition is difficult to achieve. There are also significant changes in vegetation structure in pastoral areas (Kolloa division) due to tree-clearing,

creased density of native trees and shrubs ("woody thickening") or the proliferation of weeds, and this is likely to have substantial effects on biodiversity in the affected area.

3 Education level of the pastoral communities in Kolloa division

		Education level			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Primary One-three	15	15.0	15.6	15.6
	Primary Four-Seven	10	10.0	10.4	26.0
	Secondary	6	6.0	6.3	32.3
	Tertiary	4	4.0	4.2	36.5
	None	61	61.0	63.5	100.0
	Total	96	96.0	100.0	
Missing	System	4	4.0		
Total		100	100.0		

Table 4.3

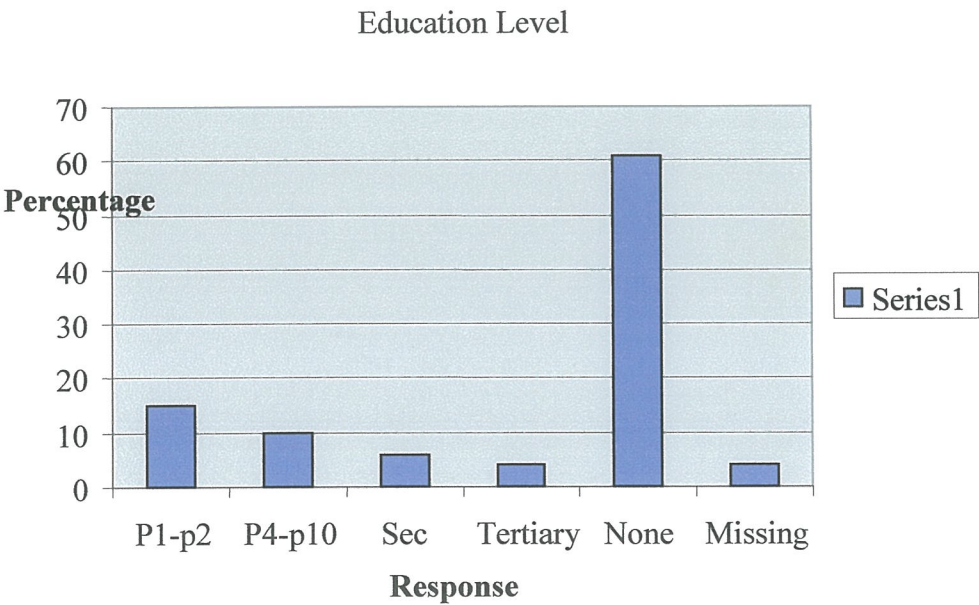


Chart 4.3

The researcher was interested in establishing the education level of the pastoral people in Kolloa district and of the 100 respondents,15 of them (15%) of them said that they had

ended from primary one to primary three, while those who ended in primary four to seven were 10 (10%). Those who ended in secondary level were 6 (6%), tertiary (4%) and the missing system amounted to 4%. The above finding implies that education level is still low in pastoral areas.

4

The question of number of people who carry out pastoral activities

researcher was interested in finding out whether all people are involved in the pastoral activities in kolloa division and the findings are revealed in both the frequency table and the the graph.

How many carry out pastoralism in your area

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	All of Us	77	77.0	83.7	83.7
	Few of Us	14	14.0	15.2	98.9
	Total	92	92.0	100.0	100.0
Missing	System	9	9.0		
Total		100	100.0		

Table 4.4
Pastoralism is the dominant activity in Kolloa division as indicated in the above frequency table and the same information has been presented in the next picture (bargraph).

People who carry out pastoralism in Kolloa Division

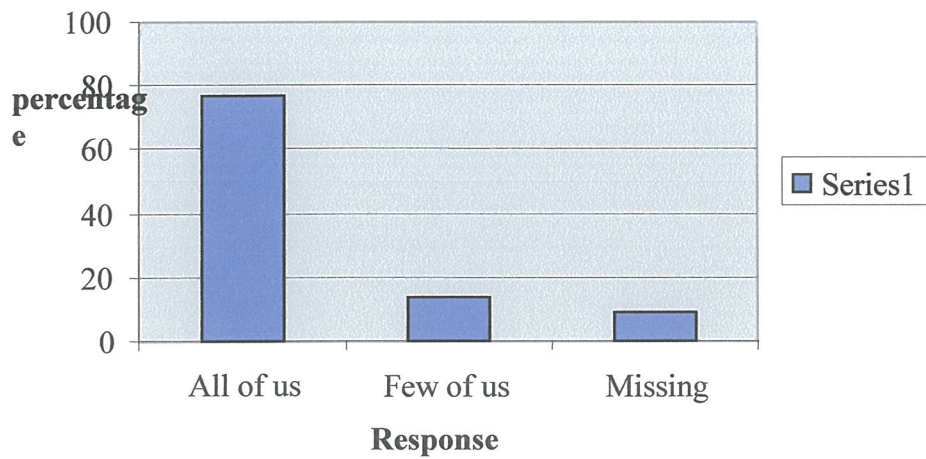


Chart 4.4

Of the 100 respondents, 77% said that they are all involve in pastoralist activities , while only 14% of them said that it was a few of them who were involved in the activities of pastoralism. The missing system was only 9%. This finding implies that pastoralism is the major economic activity in Kolloa division.

The research also confirms that even women are involved in livestock keeping though they are more concerned with the sheep, goats, and calves.



Source: From the field of the researcher

Women taking care of a young sheep in Kolloa division

4.5 The aspect of number of animals one should own

Number of Animals one should own

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 10	4	4.0	4.2	4.2
	More than 10	5	5.0	5.3	9.5
	Less than 50	56	56.0	58.9	68.4
	More than 50	24	24.0	25.3	93.7
	No	6	6.0	6.3	100.0
	Total	95	95.0	100.0	
Missing	System	5	5.0		
Total		100	100.0		

Table 4.5

From table 4.5 different people gave different views on the number of animals one should have in an area.4% of the respondents said that the number of animals' one should have

should be less than 10, while those who said it should be more than 10 were 5%. And 50% of them said recommended that one should have less than 50 animals. Those who stated that it should be more than 50 were 24% and those who recommended no limit were 6%. The missing system was 5%. This finding implies that majority of the pastoralists support the idea of having many animals.

4.6 The issue of land ownership in kolloa division

Since land is an important natural resource as regards pastoral activities, the researcher saw it worthwhile to investigate land ownership in the area of study.

Land Ownership

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Communal	66	66.0	72.5	72.5
	Mail land	7	7.0	7.7	80.2
	Customary	14	14.0	15.4	95.6
	Private	4	4.0	4.4	100.0
	Total	91	91.0	100.0	
Missing	System	9	9.0		
Total		100	100.0		

Table 4.6

From table 4.6, it was found out that most of the land is own on communal basis (66%) of the respondents. This was followed by the customary (14%) of the respondents and then mail land ownership, which constituted 7% of the respondents. Only 4% said that land is owned privately. The missing system amounted to 9%. The fact that most of the land is owned on communal basis implies that no individual person can influence land activities and developing such land is quite had.

4.7 Source of water on Kolloa division in East Pokot district

Since water is very important for the survival of animals, the researcher was interested in finding out the source of water in the pastoral area of kolloa division and the following information was obtained.

The sources of water available

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bore hole	5	5.0	5.3	5.3
	Springs	15	15.0	15.8	21.1
	Dams	65	65.0	68.4	89.5
	Wells	6	6.0	6.3	95.8
	Others	4	4.0	4.2	100.0
	Total	95	95.0	100.0	
Missing	System	5	5.0		
Total		100	100.0		

Table 4.7

Of the 100 respondents, majority of them (65%), said that the major source of water was dams, followed by springs (15%). The boreholes constituted 5% of the stated sources of water and the wells 6%. The missing system was 5%. The above finding is a manifestation that dams are the major source of water and if developed can improve on the way of life of the pastoral people in Pokots area.

4.7 Challenges faced by pastoralists in Kolloa district

The research findings reveal that the pastoral people face a number of challenges in their activities ranging from conflict, drought, cattle diseases, and the list is long. However, for the case of the pokots in Kolloa division, the following was revealed.

Challenges faced

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1.00	19	19.0	20.2	20.2
	2.00	55	55.0	58.5	78.7
	3.00	15	15.0	16.0	94.7
	4.00	5	5.0	5.3	100.0
	Total	94	94.0	100.0	
Missing	System	6	6.0		
Total		100	100.0		

Table 4.7

Challenges faced pastoral people in Kolloa division

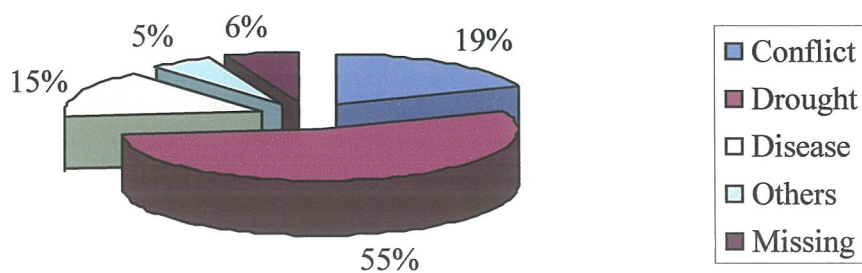


Chart 4.7

research findings indicate that drought is the major challenge faced by pastoralists as pointed by (55%) of the respondents. This is followed by conflict (19%) of the respondents and then uses (15 %) of the respondents. The others are 5% and the missing element is 6%.

4.8 The geography of the Kolloa division and the impact of drought from the field of the researcher.

The research findings confirm that kolloa division is a semi arid area. The area is quite dry because it gets inadequate rainfall.



Above is a photograph taken from Kolloa division in East Pokot district showing the geography of the area. And below is a reflection of the impact of drought to the area.



4.9 A photograph of the Saiwal bull in Kolloa division



Source; From the field of the researcher

Despite the harsh climate in semi arid areas like Kolloa, health animals like the one in the picture are raised.

CHAPTER FIVE: POLICY RECOMMENDATIONS AND CONCLUSION

It is now realized that natural resource damage of every type has genuine causes, which must be seriously addressed by all parties concerned. Endless trading of blames between Government and the people cannot be a solution.

The researcher recommends that there should be some policy measures, which have to be taken to ensure a balanced approach to the use of natural resources such as land and water for livestock production on the one hand, and to promote environment protection on the other. The Government of Kenya should formulate a National Environment Action Plan (NEAP). The main objective of NEAP should be to identify and analyze the major environmental problems and develop a comprehensive National Strategy to deal with the problems.

The Ministry of agriculture, Animal Industry and Fisheries (MAAIF) should intensify the efforts in protecting the environment, particularly the basic resources of water and soil. In order to save the land from over grazing, the Government should promote keeping of few exotic animals for milk production and the Government should popularize zero grazing.

Valley dams and tanks should be constructed to provide more water for livestock countrywide. Research and extension services should actively promote the wider adoption of practices of Integrated Pest Management (IPM), and agro forestry to Minimize environmental destruction.

Government should set up projects to educate pastoralists to relate their family sizes to the resources at their disposal. This should reduce the excessive pressure of too many people depending on a narrow land resource base. In addition, Youth play a significant

role in agriculture. Consequently, they must be intimately involved in environment protection measures. Livestock extension services should increasingly highlight youth's active participation.

As stated in the Paper Presented at an International Conference on Agriculture beyond Trade, 8th, 9th and 10th January 2002 in Paris, in order to establish an enabling environment for proper land planning all land uses in Kenya should be audited. This would ensure that Land use practices are monitored and evaluated for compliance to land use plans, environmental standards and sustainable management practices.

Ultimate ownership of natural Resources should remain in Government but control of the resources should in certain circumstances be vested in local communities, authorities at local levels who are capable of utilizing them in an efficient manner.

Community management of natural resources should be encouraged. Land marketability should not be the main focus of government for poverty eradication and development to occur.

Afforestation should be directed to free land facets. Deliberate large scale afforestation effort of semi-arid lowland environments with particular emphasis on indigenous trees also need to be initiated by responsible institutions. The potentials of indigenous tree species and pastures particularly with respect to biodiversity conservation, fertility restoration, erosion control and their use in agro forestry systems should be emphasized. Also established plantations should avoid monocultures and include indigenous trees in established plantations.

To restore soil fertility and biodiversity loss in degraded lands, Conservation farming and use of fertilizer inputs should be recommended as a prerequisite to obtain/retain such plots. Leguminous plants may be used to strengthen physical conservation structures of support plots especially on steep slopes.

Expert or skilled pastoralists should be empowered and facilitated to undertake livestock training programmes. Focus should be put on successful resources management modules that comply with area specific livestock systems and conserve the environment.

Researchers should also be trained to understand expert pastoralist's production systems and integrate these modules with scientific methods for their improvement. In this process both researchers and extension workers facilitate the process. Besides that, Expert pastoralists should be recognized and given chances to show livestock products coming out of their own initiatives towards agro diversity enhancement and conservation. Their exhibitions should cover both livestock and forestry products, successful resources management models, etc. the practice should be that they are invited to see what others have done and adopt if they can.

By-laws should be established at community level addressing positive use of manure and role of extension staff. Rewarding for planting of trees of biophysical significance and biodiversity enhancement should be developed as an incentive to effective use and management of natural resources.

5.1 Conclusion

The conflict between pastoralism and natural resource protection is a challenge to mankind for survival. There is no doubt that all societies regardless of the stage of industrialization and political maturity, have to depend on livestock for food at least. On the other hand, rampant environment damage from pastoralist practices is equivalent to the fatal action of cutting the branch of the tree on which one is sitting. It is; therefore, clear that we must create a harmonious relationship between pastoralism and natural resource protection. The measures so far taken in Kenya are by no means adequate yet. We need financial and technical cooperation to enhance these measures, review current policies and formulate new ones.

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KAMPALA INTERNATIONAL UNIVERSITY

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

RESEARCH TOPIC

This study is about the effects of pastoralism on the natural resources “case study of Kolloa division of East Pokot District”. The answers you give will be treated with utmost confidentiality.

RESEARCH QUESTIONNAIRE

SECTION A: PERSONAL INFORMATION

1. Name of village.....
2. Age
3. Sex.....
4. Occupation.....
5. Tribe.....
6. Education level.....
 - (a) P1- p3
 - (b) P4 – p7
 - (c) Secondary
 - (d) Tertiary
 - (e) None
 - (f) Other forms

SECTION B: PASTORALISTS ACTIVITIES IN THEPASTORALENVIRONMENT

7. Which pastoralists activities do you mainly undertake in this area?

.....
.....

8. How do you carry it out?

.....
.....

9. How long have you been carrying out pastoralism in this area as your main activity?.....

10. How many of you carry out pastoralism in this area?
.....

..

11. How do you own the lands in this area?

- | | | |
|------|------------|--------------------------|
| i) | Communal | ☐ |
| ii) | Mailo | ☐ |
| iii) | Customary | ☐ |
| iv) | State | ☐ |
| v) | Trust land | ☐ |
| vi) | Others | ☐ |

12. What number of animal should one have a given moment?

- | | | | | | |
|-------|------|--------------------------|------|----------|--------------------------|
| (i) | < 10 | ☐ | (iv) | < 100 | ☐ |
| (ii) | < 10 | ☐ | (v) | No limit | ☐ |
| (iii) | < 50 | ☐ | (vi) | Several | ☐ |

13. Do you have difficulty in accessing water for livestock in this area at the water sources

Yes ☐

No ☐

If yes why?

.....
.....

4. How do one water the livestock in this area at the water sources?

.....
.....
15. What are the sources available in this area?

- | | | |
|-------|----------|--------------------------|
| (i) | Borehole | ☐ |
| (ii) | Springs | ☐ |
| (iii) | Dams | ☐ |
| (iv) | Wells | ☐ |
| (v) | Others | ☐ |

16. What challenges do you encounter in keeping live stocks? Rank them numerically

- | | | | | | |
|-------|------------------|--------------------------|------|-------------------------------|--------------------------|
| (i) | Conflicts (wars) | ☐ | (iv) | Shortage of posture and water | ☐ |
| (ii) | Diseases | ☐ | (v) | Human wildlife conflicts | ☐ |
| (iii) | Insecurity | ☐ | (vi) | Others | ☐ |

17. Which are the diseases affecting livestock?
.....
.....

SECTION C: IMPACT OF PASTORALISM ACTIVITIES

18. How do the activities mentioned in 17 above affect the following?

- (i) Vegetation
(ii) Soil etc

19. Do the changing charismatic conditions alter resources distribution and supply in the arid areas?
.....
..

.....
.
If yes, how?

.....
And If no. how?

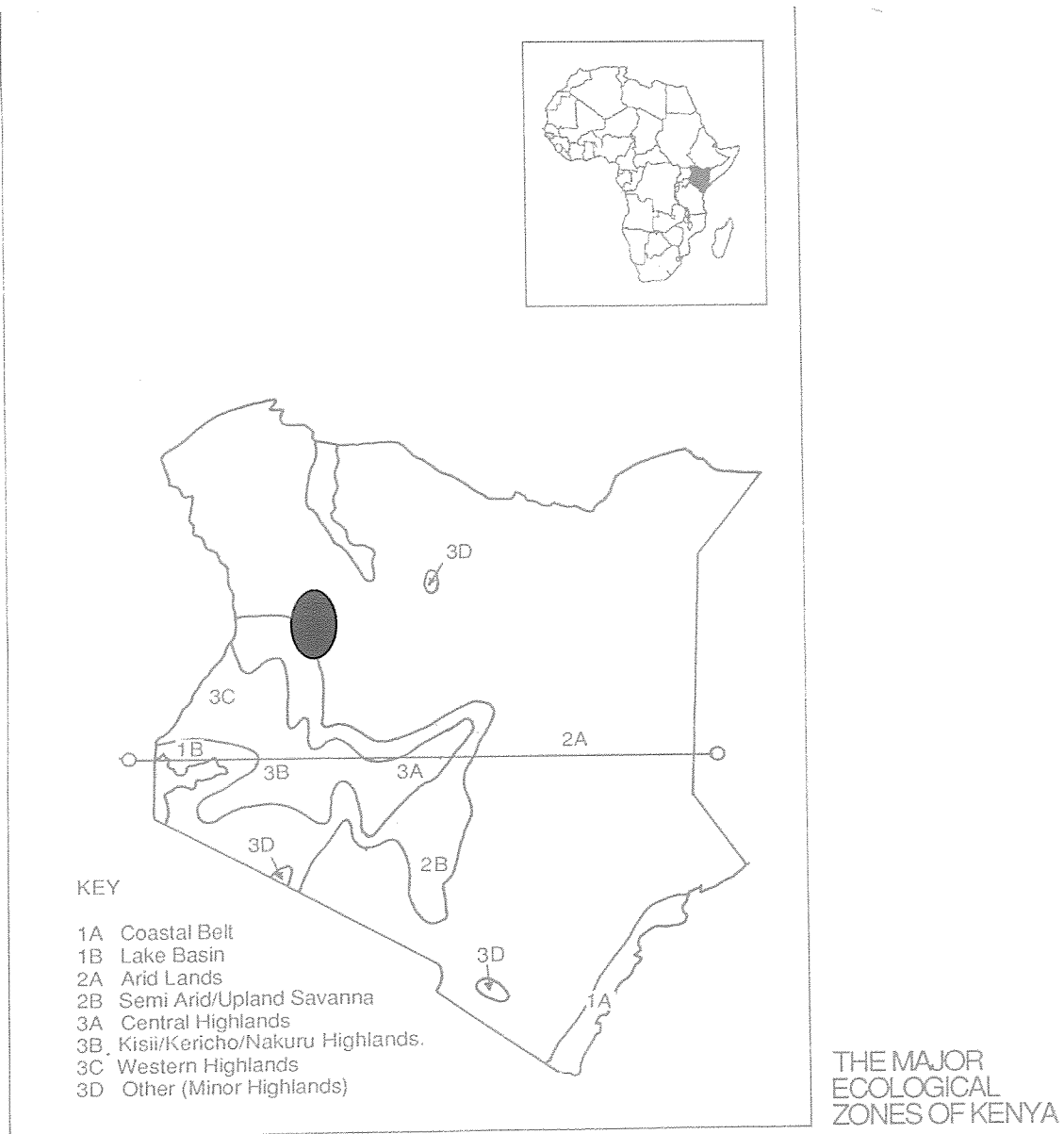
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SECTION D. WHAT HAS BEEN DONE BY LOCAL COMMUNITY

21. What have you done to reduce natural resource degradation in this are?

.....
.....
22. How have other groups done it?

.....
.....
23. Apart from individual efforts how have the following contributed in natural resource management and controlled in this area to realize wise use of the environment to realize wise use of the environment?

Map of Kenya



KOLLOA DIVISION

OFFICE OF THE PRESIDENT
ARID LANDS RESOURCE MANAGEMENT PROJECT

tel. (0325) 21619
fax (0325) 21620
in replying please quote

No. ...ALRMP/BAR/PER/Vol.II/34
and date



DISTRICT PROJECT CO-ORDINATOR
ARID LANDS RESOURCE
MANAGEMENT PROJECT

P.O. Box 28
MARIGAT

21st February 2006

..... 20.....

Mr. Nelson Kaptuya
P.O. KILLOA

REF: YOUR ATTACHMENT TO THE PROJECT

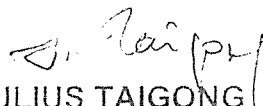
Following your request to do your course attachment with the project, your request has been accepted.

The relevant project staff while undertaking their project activities will incorporate you so that you can get a practical learning experience.

You should however observe the following: -

1. While doing your attachment the project will not pay you a salary or allowances or any other monetary payments. You will be responsible for your own up-keep during the attachment.
2. You will observe the project processes and procedures which are in compliance with government regulations.

Wish you a fruitful attachment.


JULIUS TAIGONG
DROUGHT MANAGEMENT OFFICER
BARINGO

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