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'LIBERTY IN BUKUSU TRADITIONAL SOCIETY'

Signed

BY

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WAFULA, JACKSON MUYILA

A Thesis submitted in partial fulfilment of the requirements for the award of the degree of Master of Arts in the **University of Nairobi.**

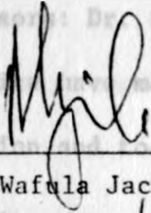
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DECLARATION

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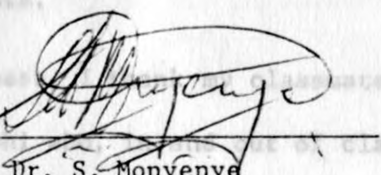

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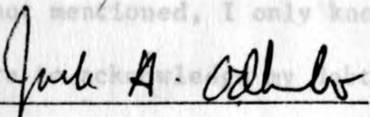
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And last, but no means least, I thank my classmates, Francis Owakah, Oriare Nyarwath and Wairimu Gichohi who, in and out of class, were full of scholastic inspiration.

It is impossible to estimate all that has been gained by me from the above people and many others not mentioned, I only know that the gain has been great and that I want here to acknowledge my debts.

ABSTRACT

The idea of individual liberty has become a major issue in all societies the world over. It is argued that liberty is an inalienable right for all human beings and that individual liberty is a necessary condition for the development of individuals and nations.

My parents, Muyila Sirengo and Susan Muyila,

and

My Brothers and Sisters for sacrificing so much

for the sake of my education. For that, I

dedicate this thesis to you all.

This study looks back at a traditional African society to see whether or not its social system especially religious beliefs worked towards this goal. That is, granting liberty to individual members of the society. Since religion played a central role in the African traditional society, emphasis is put on the examination of the impact of the major religious beliefs and practices on individual liberty.

This study is based on library research on the African traditional beliefs and practices and on the concepts of liberty.

These beliefs and practices are then examined as well as their authoritarian tendencies laying bare how and where they violated the liberty of the members of the society in question.

ABSTRACT

The idea of individual liberty has become a major issue in all societies the world over. It has been argued that liberty is an unalienable right for all human beings and that individual liberty is a necessary condition for the development of individuals and consequently their societies. Societies all over the world are therefore being urged to evolve institutions that grant maximum liberty to their citizens. It is only in a free environment that individuals are able to exploit their talents to the full for both their individual and collective development. This fact has made it necessary that for any meaningful and faster development of any society, it must grant its citizens the maximum freedom possible.

This study looks back at a traditional African society to see whether or not its social forces especially religious forces worked towards this goal, that is, granting liberty to individual members of this society. Since religion played a central role in the Bukusu traditional society, emphasis is put on the examination of the impact of the major religious beliefs and practices on individual liberty.

This study is based on library research on the Bukusu traditional beliefs and practices and on the concepts of liberty.

These beliefs and practices are then examined to unveil their authoritarian tendencies laying bare how and where they violated the liberty of the members of the society in question.

It is concluded that these beliefs and practices together with the social framework that resulted from their influence, were in many ways authoritarian and as such limited the liberty of the members of this society.

The thesis commences with the statement of the problem, objectives, justification and significance, theoretical framework, hypothesis and the methodology of the study. It also presents a brief introduction of the Bukusu traditional society and its major religious beliefs and practices. The second chapter makes a survey of the philosophical concept of liberty putting emphasis on definition and its necessity for mankind. Armed with this idea of liberty, chapters three and four present an examination of the Bukusu traditional religious beliefs and practices showing how each of them affected the liberty of the individual. Chapter three examines the effects of the rites of passage on liberty while chapter four, those of other religious beliefs and practices other than the rites of passage.

Chapter five makes a critical analysis of the position of the individual in the Bukusu traditional society. And the last chapter draws a conclusion which shows that individual liberty was to a great extent absent in the Bukusu traditional society.

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CHAPTER ONE

INTRODUCTION

1.1 THE STATEMENT OF THE PROBLEM

A close examination of the Bukusu traditional beliefs and practices seem to reveal some conflicts with the basic requirements of the principle of liberty. An individual, as the principle of liberty holds, should have the freedom of doing whatever he wills as long as this does not threaten or harm the equal liberty of others. Yet in the Bukusu traditional society there seem to have been a tyranny of traditional beliefs and practices and a tyranny of the group or of collectivity. The individual was completely dominated by the group, the family, the clan and the society as a whole. The unity of the group demanded an absolute subordination of all other interests and ties to the claims of group solidarity.

Conflicts between the claims of individual human beings and the societies to which they belong are however as old as the human race. Political theorists in fact, trace the origin of the modern states from an authoritarian order. It is the protest against this order that gave birth to the idea of liberty which was advanced by liberalists. Liberalism was a political belief emphasizing freedom of the individual from external restraint. It is committed to a set of methods and policies that have as their common aim greater freedom for individual men. Its basic aim is to reorganize society so that the citizens will enjoy the maximum of liberty compatible with the order necessary for survival of the society.

It was this movement that came up with the ideas of social rights and human rights. It finds humanity oppressed and fights to set him free. The history of liberalism is a past in which men are presented as fighting for freedom against the prejudiced upholders of tradition or despotism. It appeared from 15th century to the 18th century with the aim of freeing humanity from the hampering conditions of the political, social, economic and religious structures of the middle ages. Liberalism as a coherent system of ideals and practical goals, first developed in England in the 17th and 18th centuries. After the revolution of 1688, Britain was thought to be the freest society. English political philosophy and a somewhat idealized conception of England's free political institutions profoundly influenced continental thought and helped to shape the classic expression of the 18th century liberalism put forward in the American and French revolutions. Liberal doctrines spread to the rest of the world. In the British and French colonies, in the name of liberty, indigenous politicians in each colony demanded for themselves the rights of free speech political organization and self-government. Liberal thought taught that it was wrong to oppose this desire for freedom.

In the late 19th century and 20th century liberalism assigned greater importance to the social environment within which liberty had to be realized. Society and its institutions, it was argued, had to be varied and organized for the greater development of each individual citizen's potentialities.

Liberalism has been the chief doctrine that has been fighting for human rights. They remind us how vital to human development is the recent hardwon version of human rights. These human rights are in keeping with the substance of the dignity of the human being.

The question of human rights has received so much support the world over. These rights concerns the satisfaction of man's essential needs, the exercise of his freedoms, and his relationship with others. The question of human rights culminated into the universal declaration of human rights and other international and national juridical instruments which are endeavouring to create general awareness of the dignity of the human being, and to define atleast some of the inalienable rights of men. These includes the right to life, liberty and security of the person.

The more we know about the Bukusu traditional beliefs and practices, the less does it appear that there was respect for most of these human rights; the right to life, right to food, the right to freedom of expression, thought, conscience and religion, the right to choose a state of life, to enjoy all conditions necessary for family life, the right to property, the right of association, the right to freedom of movement, the right to political participations etc.

In this society, the individual was bound by a fixed social system based on traditional beliefs and practices and with a comparatively small margin for personal advancement beyond the traditional limits. Individual variability, as advocated by the principle of liberty, was subdued with authoritarian social and supernatural sanctions. This uncompromising passion for conformity spread into the most minute detail of individual lives.

The Bukusu traditional society maintained this conformity by its absolute religious beliefs and practices. The society had some beliefs and practices whose demands and requirements were absolute and

any challenge to them, it was believed would lead to the destruction of the person concerned or even the whole society. It is these beliefs and practices that guided the Bukusu people at each step of their lives. For them, the reality of these beliefs was undeniable. The hand of the spiritual, mystical or magical forces weighted heavily on the living and as it was believed, guarded jealously the preservation of the old methods and ways. To these forces, as it was believed by the Bukusu, the standard of the dead was to remain being the standard of the living, for the whole malignancy/would be let loose on anybody who disputed this. Yet to maintain the old order under changed circumstances is naked authoritarianism. Any attempts to burst these iron bonds of conservatism would be suppressed by fear of public opinion and the supernatural wrath. Variations, improvement and progress must have been consequently limited. This must have meant a limitation of individual liberty, a violation of the basic human right that is so essential not only to the individual but to the society as well. Malinowski contends that freedom is an indispensable ingredient of man, primitive and civilized, which give birth to inspiration to create ideas, to the criticism of the old so that new knowledge, new art, and a fine moral quality may emerge. Under the conditions rendered by the Bukusu traditional society, the individual could hardly dare to be more industrious and to accumulate more wealth than fellows, he dared not show great skill, he did not venture out upon new path of progress for this was against the society's religious beliefs and practices and could lead to public and supernatural wrath.

The Bukusu traditional social and religious set up or framework seems to have violated individual liberty. This set-up seems to have been authoritarian towards individuals limiting their liberty that is so

indispensable both to the individuals and society.

It is this possibility of conflict between the Bukusu's social and religious set-up and the principle of liberty that this study sets out to explore. Was this society actually authoritarian towards the individual and in which areas of the social framework were these authoritarian tendencies hidden? This study however limits itself to the examination of the impact of the Bukusu traditional religious beliefs and practices to individual liberty. The study does this by analysing the concept of liberty in relation to demands, requirements and practices of the Bukusu traditional religion. The study, will as much as possible, be limited to the Bukusu society before the influence of western civilization.

1.2 OBJECTIVES OF THE STUDY

This study aims at examining the effect of the Bukusu traditional religious beliefs and practices on the liberty of the members of the society.

In order to realise this objective, firstly, this study makes a survey of the basic tenets of the principle of liberty with emphasis on the operational definition and its necessity to mankind.

Secondly, the study critically examines some of the major traditional religious beliefs and practices and analyses their impact on individual liberty. These, include, among others, the rites of passage, the belief in life after death, taboos, curses, witchcraft and sorcery.

Thirdly, the study assesses the position of the individual in the Bukusu traditional society showing how the various social forces especially religious forces affected his liberty.

1.3 SIGNIFICANCE AND JUSTIFICATION

A general survey of the literature on Bukusu traditional society show that the study has been fairly done. Most of these literature is unfortunately only descriptive. There is a lot of literature on the concept of liberty or freedom but hardly any of this literature tackles the question of liberty in a traditional African society and in particular the Bukusu traditional society. This study attempts to apply the concept of liberty in a traditional African society.

- This study, it is hoped, might provoke more studies of this nature on other traditional African societies to enable a clear and general understanding of the question of liberty in traditional Africa.

In addition, this study may create a scholarly debate between those who feel that traditional African societies, like the Bukusu, were authoritarian and those who feel otherwise.

It is the contention of this study that the sorry state of the question of liberty in post-independent Africa will be partly understood and improved if it will be traced right from our traditional societies in the pre-colonial period. This study is an attempt towards this direction.

It is hoped that this study will expose some anachronistic traditional beliefs and practices that still persist in our modern society which would facilitate for their abandonment or modification.

Finally, it has often been claimed by some philosophers such as Kwasi Wiredu that our traditional culture was authoritarian. By studying a traditional African society, this study goes a long way to establish the validity of such claims in the society in question.

1.4 THEORETICAL FRAMEWORK

This study is based on the principle of liberty. It operates under the fact that liberty is an unalienable right for all human beings which all societies irrespective of race or stage of development must strive to uphold. Societies must cultivate an environment of freedom only under which individuality can translate itself from what it is to what it has the capacity of becoming. Focusing on the Bukusu traditional society, this study will attempt to show whether or not this society met this basic requirement.

1.5 HYPOTHESIS

This study aims at testing the hypothesis that individual liberty in the Bukusu traditional society was limited by its religious beliefs and practices.

1.6 METHODOLOGY

This study was based on library research since the Bukusu traditional society has a fairly well researched literature. Information was gathered from relevant books, journals and unpublished works. Of primary importance on the Bukusu traditional society was the ethnographic work by Cunter Wagner.

On the concept of liberty, there was more than enough literature but special attention was given to J.S. Mill's essay on liberty. The conflicts between the Bukusu traditional religious beliefs and practices and the principle of liberty is then analysed.

It is consequently revealed from this analysis that within the Bukusu religious beliefs and practices were hidden a lot of authoritarian tendencies which actually limited individual liberty.

1.7 ETHNOGRAPHIC BACKGROUND

Bukusu people inhabit Bungoma district of Western Kenya. The district is bordered by Busia district in the South, Kakamega district in the East, Trans Nzoia district in the North and Mount Elgon in the West. Bukusu is one of the subtribes that make up the Abaluhya Community of Western Kenya. There are sixteen known subtribes that form the Abaluhya community. These include the Bukusu, Maragoli, Tachoni, Kabarasi, Isotso, Isukha, Idakho, Tiriki, Marama, Kisa, Nyala, Marachi, Samia, Nyore, Wanga and the Khayo.

Though these subtribes are interrelated ethnically and linguistically, the Luhya community is not a homogeneous group. They are marked by some distinct differences in their dialects and cultural practices.

These sub-tribes were referred to as the Bantu of North Kavirondo until the 1940's when they adopted the name 'Abaluhya' meaning descendants of a common but polygamous home. Bungoma district is occupied by two of the Luhya subtribes: the Bukusu and the Tachoni. These groups together with the Bagisu of Eastern Uganda have very close linguistic and cultural relationship. Commenting on this relationship between the Bukusu and Bagisu, Makila states that:

besides similarities in language, resemblances can be found in such cultural aspects as codes of conduct, marriage customs, circumcision traditions and even folklore.¹

Bungoma district is also occupied by two other smaller ethnic groups; the Kalenjin or Sabaots and the Teso. The Bukusu occupy the largest area of the district and are mainly found in the southern, central and Eastern parts of the District. A number of Bukusu people have, since independence, spread into parts of Trans Nzoia district.

The Bukusu accounts indicate that their area of origin was a place called Misiri somewhere in the present Republic of Sudan. On their way to their present abode, the Bukusu, led by their leader Mubukusu settled at a place called Embai in Uganda. After Mubukusu's death, his descendants pushed on until they finally settled in their present area in Bungoma district. They occupied a fertile and well watered area where they practised some farming and owned large herds of cattle.

In the pre-colonial period, the Bukusu lived in small communities made up of walled villages without any specialized political institutions common to the whole tribe. The building of walled villages locally known as "chingoba" was mainly done for defence purposes. Each walled village usually consisted of one clan with its own leader, the "Omukasa". The clan was the largest basic unit of organization and there was no tribal authority which could overrule the authority of the clan in its affairs. A number of walled villages could recognise one or two elders and arbitrators in disputes between people of different walled villages. It was only religious leaders who had influence across the village boundaries. Jan Jacob de Wolf comments on the political organization of the Bukusu that:

there were no kings, chiefs or other territorial rulers who played roles within an institutionalized framework of a state like organization.²

The Bukusu society was, therefore, stateless with no common elaborate political organization. Leadership of society at clan level and, in times of a common threat, the whole society, rested in the hands of the elders who were the custodians of the cultural traditions of the society.

They had the responsibility of maintaining discipline and order in the clans and society at large.

The Bukusu way of life was essentially of a religious kind, and was dominated by the cult of the ancestors. Religion was lived out throughout life, integrating and permeating all aspects of life. The Bukusu depended heavily on the supernatural powers in their quest for posterity, prosperity and position.

The Bukusu had the idea of a supreme being similar to those held by a great many other African groups. The supreme being called 'Wele' was seen as the creator of the world and man. He was also conceived of as the maintainer and promoter of all forces and things which are good and helpful to men.

He formed the apex of a kind of hierarchy of ancestral spirits who, like Wele himself, were favourably inclined towards the living and acted essentially as their helpers and protectors.

The ancestral spirits were a constant frame of reference for all activities in the society. The Bukusu feared their anger and displeasure and therefore always tried to follow the traditions of their ancestors.

The traditional Bukusu was not primarily an individual but a member of the community. The individual was simply part of the whole. He was communally oriented, intimately tied to his family, clan and tribe. Membership to these groups was not limited to those living, but extended backward to the ancestral spirits who were considered a vital part of these groups. To be human was to belong to these groups, and to do so involved participating in their beliefs, ceremonies, rituals and festivals.

1.8 BUKUSU TRADITIONAL RELIGION

The term 'Bukusu traditional religion' will be used technically to refer to the religious beliefs and practices of the Bukusu people before the advent of Christianity and Islam.

Behind every religion is the belief in the existence of unseen superhuman beings, powers or forces which are believed to be at work in this universe. Religion is a kind of human behaviour which consists of beliefs and practices concerned with the supernatural.

McVeigh J.M. defines religion as a felt practical relationship with what is believed in as superhuman beings and power.³ Through religion, man tries to understand and explain the supernatural beings and powers. He tries to gain some control over it and put it to use for his own benefit or atleast to render it harmless. Through religion man tries to explain things that are not understood in terms of their experiences in the natural world.

In referring to the Bukusu religion, this study will be referring to that province of the Bukusu people and their relationship with supernatural beings and forces. At the base of this religion was the belief in supernatural beings and forces. All those Bukusu beliefs and practices which depended in one way or another to the belief in supernatural beings and forces, were religious. These included, among others, the belief in ancestors and other supernatural beings, witchcraft and sorcery, rites of passage, taboos, curses, divination and rain making. It is important to note that in Bukusu traditional society, every aspect of life, every activity, economic, social, or political was religious. There was hardly any aspect of life that was devoid of religion. For the purposes of this

study, only a few major religious beliefs and practices will be examined.

In the Bukusu society, throughout one's states of growth, from birth to death, ritual ceremonies and other practices had to be observed. These were more elaborate during child birth, circumcision, marriage and death.

The belief that physical death was not the end of existence was a very important feature in the Bukusu traditional religion. The limits between life and death did not really exist. Life, according to this belief, was born from death and death in turn was the prolongation of life. The Bukusu believed that the dead continued to be part of their families, clans and society. There were therefore several religious issues between the living and the dead.

Another important feature of the Bukusu cultural beliefs was the concept of taboos. The word 'taboo' or 'tabu' is an importation from the Pacific Islands. J.O. Kayode defines it as:

a malenesian word with a religious and social interdict meaning forbidding performance of an act or stating the wrongness or rightness of a way of life, of a certain action. It is a restriction or ban, founded on custom or social convention.⁴

Taboos in essence are religious restrictions whose violation could lead to supernatural wrath. Any avoidance that has any dependence upon ideas of spiritual force points to a taboo. In Bukusu society, taboos surrounded an individual throughout his life and in all his activities subjecting him to the most complex set of social boundaries to preserve.

Then there was the belief and practice of witchcraft, sorcery and curses. In Bukusu traditional society, there was the belief that people

had some mystical powers which they could use to cause harm to others through witchcraft, sorcery and curses. It was held that some people could use the supernatural properties of certain creatures, objects, gestures, words and even thoughts as a means of inflicting harm on others.

F.B. Melbourn defines witchcraft as "an innate power which can be used by its owner to do harm to others."⁵ This association it is believed, takes place only in immaterial form. Witchcraft is part of an individual's being, a part of his innermost self. The power of a witch can work against a victim at a mere wish of the witch or if he feels annoyed or jealousy of the victim. In Bukusu society, it was believed to be transmitted through inheritance.

Sorcery on the other hand involves the use of material objects to cause harm on others. A curse can simply, at this stage be defined as a special pronounced evil by an elder to his juniors especially by a parent to his children.

Finally, of interest to this study is the belief and practice of sacrifices. Sacrifices are common to all human societies. They serve as a means through which man expresses his awareness of transcendental beings outside himself. In Bukusu society, sacrifices usually involved the slaughtering of animals.

Within these religious beliefs and practices are hidden authoritarian tendencies which appear to be in conflict with the basic principles of liberty. These beliefs and practices seem to have, to a larger extent, affected the liberty of the individual members of this society. Other than adhere to their own conscience and the changing circumstances, individuals submissively adhered to the demands and requirements of their religion. This study examines these religious beliefs and practices and shows how they interfered

with the liberty of the members of the society.

To be able to do this, it would be better first to understand what is meant by the term 'liberty' which is the subject of the chapter that now follows.

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GROUP OF LIBERTY

According to Webster's third new International dictionary, liberty
means the state of being free. This is usually freedom from external

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The only way for which man can be free,
individually or collectively, is by
with the liberty of action of any of their
members at all times. That the only
purpose for which power can be right-
ly exercised over any member of a civilized
community, against his will, is to
secure to others the same liberty
against which he is exercising the
same power. This is the only
purpose for which the power of the
community can be justly exercised
over any one of its members.

CHAPTER TWO

2.0. THE CONCEPT OF LIBERTY

According to Webster's third new international dictionary, liberty is the quality or state of being free. This is usually freedom from external restraints and compulsion allowing the individual to do as he pleases. The idea of liberty, as pursued by this study, is not absolute liberty but rather the maximizing of the individual's freedom to do whatever he pleases. Freedom to do as one pleases is subject to degree.

J.S. Mill, perhaps one of the greatest known advocates of individual liberty defines liberty as the freedom of doing anything which does no harm to others. The individual should be free to pursue his own self-interest so long as he keeps the peace and does not interfere with the rights of others. He states that:

the only freedom which deserves the name is that of pursuing our own good in our own way, so long as we do not attempt to deprive others of theirs or impede their efforts to obtain it.¹

Mill's assertion here is a recognition of the need for some restraint on individual liberty as a necessary condition both for social life and as a safeguard of freedom itself. Restraint is only tolerable if it works towards the attainment of this goal. Otherwise society has no jurisdiction over an individual's conduct that is of no harm to others. On this point Mill states that:

the sole end for which mankind are warranted, individually or collectively in interfering with the liberty of action of any of their number is self-protection. That the only purpose for which power can be rightly exercised over any member of a civilized community, against his will, is to prevent harm to others. His own good, either physical or moral is not a sufficient warrant. Over his own body and mind, the individual is sovereign...²

Mill's aim here is to grant maximum liberty to the individual which is compatible with equal liberty of others. Mill's theory of liberty may not be as absolute as some scholars may want it to be understood. It has in ~~fact~~ been pointed out that his criterion is difficult to apply and does not leave much liberty to the individual. A man can do nothing seriously harmful to himself without affecting atleast some other whose welfare depends upon his being able to act in ways in which the harm he does himself prevents him from acting. Though any kind of action may sometimes injure other people nearly as much as or more than it injures the agent, it does not follow that the actions which injure them not at all, or so little as not to be worth regarding, are few. It is common knowledge that such actions are many, and that people have to interfere with what does not concern them. Admittedly the strict application of Mill's criterion of individual liberty may leave many people with infact less liberty than he wants. To argue that Mill advocates for absolute liberty is a self-defeating argument especially when it comes to its application.

F.A. Hayek defines liberty as "that condition of men in which coercion of some by others is reduced as much as possible."³ By coercion, Hayek means the control of an individual's environment or circumstances by another so that the person acts not according to his own but another's plan. It involves the use of threats of inflicting harm with the intention of influencing another person's conduct or actions.

Hayek advocates for a condition of freedom in which a person pursues his own aims by the means indicated by his own knowledge and not to be shaped by another's will. He does not

in society but states that this has to be reduced to the minimum necessary for social life. He does not advocate for absolute freedom since this would lead to no freedom at all. Liberty presupposes society and can therefore only exist and be exercised in social conditions by men living in the midst of other men. Some control or restraint on liberty is necessary for social life.

Hayek therefore views liberty as the condition in which coercion is reduced to the minimum possible for social life. It is the condition in which men are free to determine their own destiny, to pursue their own goals as directed by their own conscience as long as their doings allow for the enjoyment of similar freedom by others.

D.D. Raphael has argued that to be free is to be able to do as you like but if this is done with no consideration of your neighbours, one is bound to prevent them from doing as they like. Complete or absolute freedom is a contradiction unless men have nothing to do with each other. In Raphael's view, rules should be enacted to guide men's relationships so that the actions of some should not prevent others from doing whatever they want to do. He states:

Freedom must be restrained if it is to be effective. What we should aim at is a maximum amount of freedom that is compatible with similar freedom for other people.⁴

Raphael, like Mill, states that society is only entitled to limit a man's freedom in order to prevent him from doing harm to others. Liberty is only restrained for the sake of liberty itself.

According to T.T. Paine, liberty consists in the right to do whatever is not contrary to the rights of others. To him the exercise of

the natural rights of each individual has no limits other than those which are contrary to the right of others. He argues that whatever is one's right as a man is also the right of another and it becomes one's duty to guarantee as well as to possess. Liberty can only be restrained if its exercise threaten or harm the equal liberty of others.⁵

Malinowski sees freedom as the condition necessary and sufficient for the formation of a purpose, its translation into effective action through organized cultural instrumentalities, and the full enjoyment of the results of such activity. Individual freedom consists in his ability to choose the goal, to find the road and to reap rewards of his effort and endeavours. Liberty involves the continued existence of unclosed possibilities of choice even after one has been taken, allowing a person to continue to do what he wants even after he changes his mind. A free man is that one who can decide on his own what to do, where to go or what to build. He determines his own destiny without external influence. Malinowski states that freedom is withheld whenever external influence prevents one from determining his own destiny. Liberty, he states:

is held to be endangered or denied when some outside influence prevents the doing of what one desires to do, feels able to do, and has otherwise available means of doing.⁶

Malinowski, in line with others, also recognises the necessity of some limitations on individual liberty to render social life possible.

W.P.C. Gordon, in a similar manner, argues that minimal compulsion is necessary since all forms of social pressure aim at controlling and regulating man's passions and emotions. This is necessary to confer upon man the rationality and liberty that he has to exercise if society is to

come into existence and for him to exist as a man. Absolute freedom would lead to disorder, lawlessness, anarchy and chaos.

Joad contends that the presence of force in society is required not against the normal social citizen, but against the exceptional anti-social citizen whose activities call for the use of force against him in order to safeguard the liberty of the other citizens. He is restrained from making the activities of the other citizens impossible.⁷ Here, Joad echoes the reasons expounded by other liberal thinkers for restricting the individual's liberty to do whatever he likes.

According to Hobbes, liberty meant the absence of opposition. Individual liberty consists in what the laws of the state do not forbid and in what cannot by the nature of the covenant be given up such as the right of self-defence and preservation. He states that the establishment of laws does not destroy liberty but rather safeguards it. Liberty is at its best in the state. In the state of nature, liberty is license and leads to anarchy. Liberty to Hobbes, is therefore that freedom by allowance of the sovereign.⁸ Hobbes, however was solely concerned with the pragmatic question of effective government, and legitimacy did not interest him at all. He therefore presented a sort of police-state in which the thoughts and actions of the individual, his freedom and property are at the mercy of the will and whim of the sovereign.

Locke states that the natural liberty of man is to be free from any superior power on earth and not to be under the will or legislative authority of man, but to have only the law of nature for his rule. Locke distinguishes this type of liberty from Civil liberty, the liberty of man in a civil society. The liberty of man in a society is to be under no other legislative power but

that established by consent in the commonwealth, nor under the dominion or authority of will or restraint of any law, but what the legislature shall enact according to the trust put in it. He is opposed to absolute liberty where everyone has licence to do as he wants. He instead advocates for freedom guided by laws that apply equally to all.

From the foregoing survey, liberty is seen to be that state of being free from external influence, restraint or compulsion. It is that condition under which an individual can do whatever he wants without restraints as long as his actions guarantee equal freedom for others. Individual liberty is that range within which an individual can determine his own destiny without external interference. Within this range, an individual recognises no control of any external authority over him in the process of determining his own destiny. In the analysis of the concept of liberty, reference is in all cases made to the absence of coercion or interference and to an area within which one can choose or act on one's own initiative, to a specific sphere of individual or social activity within which the right to make one's own choices and decisions, to follow one's own course, is regarded as being of particular importance in the development of an individual.

Freedom is therefore characterised by the absence of coercion or constraint imposed by a person on another. A free person is one who has the disposition to act freely and independently or to develop his capacities to the fullest. A society is supposed to enact laws to protect individuals against any interference in their exercise of this freedom. An individual can only have his liberty restrained if its exercise is bound to harm the liberty of others.

What comes out from most advocates of liberty is the fact that true freedom is not what Raphael calls "the happy-go-lucky freedom of liberty hall, do as you like"¹⁰ Some limitations of individual freedom is unavoidable. It is not easy to create rights, impose obligations or protect persons, life, property and even liberty except by a sacrifice of liberty. Most liberal thinkers are therefore opposed to the idea of absolute freedom for this would lead to no freedom at all.

The question of identifying the exact extent of the freedom that an individual should be entitled to has however been an elusive one among all liberal thinkers. Perhaps this elusiveness can be attributed to the complex nature of social life. Nobody, it has been argued, did better than Mill in this regard though even him, realised and acknowledged the elusiveness of this exercise.

Society has, however, the responsibility of organizing its social and political institutions in a way that would grant the individual maximum freedom and minimum restraint necessary for social life. These institutions should enable the individual to do whatever he wants without interference unless of course, in exercising his freedom, his activities threaten or harm the liberty of other fellows.

It is the contention of this author that liberty is an unalienable right for all human beings which all societies irrespective of its race or stage of development must strive to uphold.

2.1 THE NECESSITY OF LIBERTY

That liberty is an unalienable right for all human beings is not a new fact. Liberal thinkers such as Mill hold the view that individual liberty is a necessary condition for the development of individuals and consequently their

societies. A contemporary democratic theorist, Sir Ernest Barker states that:

the essence of liberty will be that it is a condition, or a status, or quality, which individual personality must possess in order that it may translate itself from what it is to what it has the capacity of becoming.¹¹

Barker's contention is that full human potential can only be realised when individuals are subjected to conditions of freedom. That it is only in a free environment that an individual can develop his potentialities to the fullest extent. In the absence of freedom, individuals' potentialities and talents are lost.

It has often been argued that human nature has a wide range of differences in individual capacities and potentials and that none is born with a known quantity of potentials or capacities. It is only through proper social upbringing in a free environment that these wide range of differences in individual capacities and potentials can become distinct. Hayek has in fact argued correctly that as a result of nature and nurture a new born infant can become one of the greatest of men or women ever to have lived.¹²

The recognition that individuals have different capacities and potentials which can be developed for their benefit and that of their societies, leads to the demand for individual liberty to allow individuals to exploit them to the fullest extent without constraints or undue influence.

A free environment is a necessary condition for the attainment of such goals. Freedom is necessary both for individual and social development. Mill writes that:

individuality is the same thing with development and it is only the cultivation of individuality which can produce well developed human beings.¹³

The cultivation of individuality which is essential for development can however only be possible in a society that grants its individuals full freedom. If individuals are to make the best use of their knowledge, capacities and foresight, they should have the freedom to go about their businesses without constraints. This enables an individual to use his mental powers to the full and consequently enables him to make the greatest contribution that he is capable of to his community. In a society where coercion is reduced to the minimum necessary for social life, individuality is cultivated leading to variability in opinions, activities and modes of existence.

This is exactly what Mill advocates for when he says that:

there should be different opinions, so it is that there should be different experiments of living, that free scope should be given to varieties of character, short of injury to others and that the worth of different modes of life should be proved practically when any one thinks fit to try them.¹⁴

Mill holds the view that society should not force or goad people into one or few modes of existence for such actions are anathema to individual liberty. The individual in such situations would be denied access to other modes of existence some of which may be more useful to him and his society as a whole. No man, therefore, dead or alive should take it upon himself to determine conclusively the modes of existence for others, and none, according to Mill has the capacity to do so.

It should be upon the individual himself to determine the mode of existence to live. In framing as many modes of existence as possible, there

will be high chances of striking out valuable modes of existence for the benefit of the whole society.

Mill has argued that the development of societies is usually as a result of the initiatives of individuals not the masses, at least at their original level. He thus argues:

The development of all wise or noble things comes and must come from individuals, generally at first from some one individual.¹⁵

And Joad echoes the same view when he says that:

Original creation in art, original thinking in morals or politics, original research in science are the products not of the masses of men organized in communities but of the minds of single men and women.¹⁶

Joad, however, expresses the fear that these creations, being new and original are bound to appear subversive to the conventional ways. They are bound to destroy the prevailing level of thoughts, art and morals only to prepare for a new and more valuable one. A free society should tolerate and in fact encourage those who expound or create radical and unconventional ideas, values and art. Frank Way emphasizes the need of such tolerance when he writes:

If we are to have active free market place of ideas then we must accept the unsettling effects, the temporary disruptions of business-as-usual, this borderline of disorder that is central to the preservation of open channels of communication.¹⁷

Freedom inspires individuals to embark on various experiments of life valuable to themselves and which may eventually prove valuable to the whole society. Thus Harold Titus asserts that "each man knows more about

his desires and needs than does someone else..."¹⁸. Consequently an individual ought to be granted the liberty of designing his ways of meeting his needs and desires. Some of these designs are bound to prove valuable to the whole society.

Mill was convinced that there are few people whose experiments would be an improvement on the already established practices and that freedom is essential for such people to discover and show the way to others. In a free society, these individuals will commence new practices and set examples of better modes of life for their society. They are the people, given maximum freedom, capable of breaking up the hand cake of custom and make progress possible. They are able to see new and better ways of doing things, ways that are different from the customary ones.

Malinowski has also rightly argued that freedom is an indispensable condition for social development. It gives inspiration to create ideas, to criticise the old so that new knowledge, new art and a finer moral quality can emerge.¹⁹ Man will develop and exploit his aptitudes and talents to the full for the benefit of both himself and his society. The cultivation of individuality will be beneficial to the whole society. Individuals will have industry, initiative, resourcefulness, thrift, self-reliance and a spirit of adventure. All these makes liberty an indispensable condition for human happiness.

Aristotle argued that the best life for any organism consists in the exercise of its distinctive faculties or talents at their highest pitch of development upon an appropriate subject matter. We get our greatest happiness by doing what we alone can do. This is possible in a free social environment.

Liberty seem to be inalienably bound up with development. A society which aims at rapid development should create a free environment for its members to enable and inspire them to contribute to this development in the ways they see fit and in which they are capable of doing. In this way individuals will fully develop and exploit their talents for their own good and consequently for the good of their societies.

The necessity of liberty is therefore largely for the development of individuals and their societies. The development of the individual is a prerequisite for the development of the whole society. The development of the ultimate unit is a prerequisite for the development of the whole. The development and happiness of the whole is dependent on the development and happiness of the parts or the components.

The individual should be entitled to the liberty of conscience, of expressing and publishing opinions, of framing a plan of life to suit his own character, and the liberty of combination for any purpose not involving harm to others.²⁰

The argument for the liberty of expression consists in pointing out that everybody should have the right of expressing his thoughts. Society is not justified in even silencing one person whose opinion is seen to be contrary to the conventional ones. Free men should have the right to seek the truth, to know, to utter and to argue freely according to their conscience. Individuals ought to be given the freedom of perceiving, contradicting and disapproving all received opinions. This freedom is necessary for the discovery of truth. The fallibility of man is enough reason to show that no man has the capacity to assume the truth of an opinion for others. All should participate in this exercise.

The argument for the liberty of tastes and pursuits consists of the right of individuals to frame their own modes of existence and design their own means to meet their desires and needs in pursuit of happiness. Individuals should pursue their own goals by the means indicated to them by their own knowledge short of injury to others.

The liberty of association is the individual liberty to associate or not to associate or to disassociate from some other group. The individual, being a social animal, needs his fellows in order to achieve certain of his goals. The choice of association, the choice to associate or not to associate should, however, be his right.

These are some of the basic individual freedoms that every individual is entitled to irrespective of his race, origin or location. This freedom is inherent in the very capacity of man to reason, to speak and to sin that makes man different from other animals.²¹

The philosophical concept of liberty is admittedly a very complex subject. It has been severally divided into several types of liberties. In certain quaters it is divided into social, political and economic liberties. Professor Odera Oruka for example gives a list of six liberties: economic, political, intellectual, cultural, religious and sexual liberties some of which are even further subdivided.²²

This study avoids this subdivision of the concept of liberty by approaching the concept from the individual point of view. Individual liberty appears to encompass all the liberties that can be thought of. Political, social, economic and all other liberties one could think of are individual because they are held by individual persons. This study will approach the concept of liberty from the individual point of view.

Emphasis will therefore be put on the question of individual liberty which, as already said, is to a larger extent inclusive of other liberties.

Let it be noted here that the available literature on liberty is mostly addressed to western societies. Mill's principle of liberty, he tells us, can only be applicable to those societies whose inhabitants have reached a stage of "being improved by free and equal discussion" but not to those still in the "non age"²³ His principle like those of many liberal thinkers is addressed to societies with well-developed political systems and science. These to a larger extent were lacking in traditional African societies.

But liberty at its basic level is an unalienable right to all human beings irrespective of their race, colour or stage of development. In all cases, freedom is a necessary environment within which the ultimate social atom, the individual, develops to the fullest extent his potentialities. H.H. Titus puts it clearly that:

if they [people] cannot think freely and express their thoughts, it will not be long before they cease to have thoughts worthy of expression. They become something less than developed persons.... personal self-consciousness, intelligence, and creativity develop best in a free atmosphere where men can think together and talk freely.²⁴

Titus therefore asserts strongly that:

we must be free to think, to speak, to criticise, and to work for a fuller life. Society and the state have the responsibility for seeing that every individual has atleast the opportunity to become a whole person.²⁵

Any acts or manipulations to restrict this freedom is an act of authoritarianism, a denial of liberty.

According to the above views raised by Titus and many others, liberty is a very important necessity for all mankind whether in developed western societies or in traditional African societies. Liberty is necessary for every individual irrespective of the development of his society. Even members of the traditional African societies or the so called primitive societies had the right and need for maximum liberty just like their counterparts in the western societies. Perhaps, it might be found out that partly due to the circumstances that are to be examined, individuals in these societies and particularly in the Bukusu society enjoyed limited or no liberty at all.

In the next Chapter, we examine the question of individual liberty in the Bukusu traditional society. Emphasis will however be put on the examination of the effects of the Bukusu religious beliefs and practices on individual liberty in this society.

2.2 NOTES

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CHAPTER THREE

3.0 THE RITES OF PASSAGE AND INDIVIDUAL LIBERTY

In Bukusu traditional society, religion permeated every aspect of human life and one could hardly identify an aspect of life that was devoid of religion. Everybody in this society was religious and nobody could think of detaching himself from the religion of his society. To exist without religion was unthought of, it was, to a Bukusu, not possible. At every state of life, event or action, an individual had to observe some religious practices.

The reason why religion permeated every aspect of life is not clearly known. In the absence of direct political and moral enforcement institutions, the Bukusu society perhaps had to devise alternative means for the maintainance of order and unity. The alternative was the recourse to the use of the supernatural as the guardians of order and unity. Every aspect of human life was put under the control of the supernatural beings especially of the ancestors to facilitate their role as guar ans. Every human aspect was therefore chained to the supernatural or rather made religious. This fact coupled with the lack of scientific knowledge about the world made religion an important social factor. Any violation of the established order and unity was seen as an abuse and challenge to the supernatural beings which no Bukusu individual could contemplate doing. The forces of law and order were the unchallengeable and powerful supernatural beings, the ancestors. The rules of conduct, however hard, irksome and unwelcome were therefore obeyed without any signs of opposition or resistance.

The entry of a person into new social status in the Bukusu traditional society was marked by ritual ceremonies.

gradual elevation in status and influence in society. At birth, puberty, marriage and death, an individual had to pass through some initiation rites or rites of passage ushering him into the new social status. The influence of these rites of passage and the social importance attached on them produced in an individual typical attitudes and behaviour of his society. The emphasis and practice of these rites of passage had in several ways some negative effects on individual liberty in the Bukusu traditional society. In this society, the most important rites of passage were circumcision and marriage.

3.1. CIRCUMCISION AND INDIVIDUAL LIBERTY

One of the most distinct rituals among the Bukusu is the practice of circumcision which takes place every two years. Circumcision ages varied considerably leaving boys with a wide margin of choice. On volunteering to get circumcised, the candidates are ritually prepared by the observance of taboos, by confessions and purification rites. Their morale is tested and stiffened by the psychological effect of the singing of circumcision songs and the boasting of the already circumcised men before them. Circumcision was a severe test of manhood which the candidates were expected to endure without any sign of fear or cowardice. They were therefore adequately prepared to face the operation and the pain which was involved.

Those who were afraid of circumcision could let one occasion after another go by until ridicule by their agemates or by the girls eventually induce them to muster up their courage and submit to the

operation when the following occasion takes place. If, however, a boy persistently refused to be circumcised, then his father with the help of his relatives could have him circumcised by force. This was done when the boy was past the usual circumcision ages.

Circumcision among the Bukusu demanded a show of courage on the part of the candidate during the operation. Anybody who showed cowardice during the operation was despised and isolated from important social functions. The parents of such cowards did not also escape the blame and embarrassment. In cases where extreme cowardice was shown by a boy especially by screaming and calling out his parents' names for help or rescue, the boy was said to have "Luswa", evil spirits. It was believed that the parent whose name is called would die unless the boy was beaten to death. It was therefore not uncommon for such boys to be beaten to death in the Bukusu traditional society. Cowardice was therefore extremely abhorred in the Bukusu Society. Stories are told of parents who had attempted to commit suicide because their sons did not show courage during circumcision.¹

An uncircumcised person among the Bukusu, even if old, was liable to be called "Omusinde", a child of no status. He was ineligible to officiate in any ceremony or participate in the process of decision making in the society. When such people died, a retired circumciser had to be hired to remove the prepuce before burial. No adult man could die and be buried uncircumcised in the Bukusu Society. Circumcision in Bukusu society was compulsory and no man could escape it.

After circumcision, the initiates move to a seclusion hut where they stay for about three months. The process of change involves ritual

danger which required separation from regular social interaction. In the seclusion hut, the initiates are in a state of limbo outside the pace of society. At the end of the seclusion period a ceremony is observed to mark their entrance into adulthood. They wash, shave, put on new skins and return to their homes as new adults with an elevated social status.

The above brief look at the Bukusu practice of circumcision reveals some authoritarian tendencies. The individual in this society had no other choice but to give himself up for circumcision. And in addition to this, he had to face the operation courageously. The question that comes out is to find the explanations behind this uncompromising stand towards circumcision.

The pressure exerted on an individual to get circumcised or the use of force against an individual to have him circumcised was quite repugnant to the idea of individual liberty as advocated by liberal thinkers such as J.S. Mill. He argues that "over himself, over his own body and mind, the individual is sovereign."² An individual is supposed to have absolute right over his own body. He should therefore have the freedom to choose to get circumcised or not to. Society need to respect this individual freedom. Whatever has to be done on an individual's body, he must have the final word. He must approve of it. By forcefully circumcising an individual or pressuring him to get circumcised, the Bukusu society violated individual freedom.

We also noted that boys who showed extreme cowardice by screaming or calling out their parents names for rescue from the painful operation were usually beaten to death on the spot. It was

mentioned that such cases were not uncommon in the Bukusu traditional society. This was a violation of the basic human right, the right to life. Men have some unalienable rights and among them is the all important right to life.

It has been argued that circumcision was, for a man, a passport to social duties and responsibilities. Its role in the Bukusu society can be equated to the role of Baptism within the christian religion. Unless a man was circumcised he could never be fully accepted into his society. Only circumcised men were allowed to perform or participate in social duties and responsibilities. Every man in Bukusu society was expected to get circumcised in order to qualify to participate in his society's activities. The refusal of a boy to get circumcised was seen as a refusal to participate in his society's duties. Circumcision, it can be argued, may have been compulsory since it was felt that if a person fails to get circumcised then this could hurt others through his failure to perform manly duties expected of him. Such duties included among others, the protection of society against external enemies, cattle raids and marriage. No uncircumcised man could be allowed to participate in these duties

From the Bukusu traditional point of view, the failure to get circumcised could be a violation of an individual's obligation to other persons in his society. Such view could be in line with Mill's argument that:

When.... a person is led to violate a distinct and assignable obligation to any other person or persons, the case is taken out of the self-regarding class, and becomes a menable to moral disapprobation..... when a person disables himself, by conduct purely self-regarding, from the performance of some definite duty incumbent on him to the public, he is guilty of a social offence.³

A man who refused to be circumcised was bound to fail to fulfill his assignable obligations to his clan and society as a whole. Such a man, in the traditional point of view, had to be circumcised by force to enable him fulfill his obligations. To remain uncircumcised was a disability which was seen to be a self-regarding conduct at the expense of the whole society.

Circumcision and the emphasis on courage can be explained by other reasons. Because of the harsh environmental conditions in which society existed, there was need for courageous men to protect their society. Since the Bukusu traditional society was threatened by wars with the neighbouring fierce Teso and Nandi, there was need for cattle raids and the protection of society's cattle from external raiders. Society members also needed to be protected against the fierce wild animals. These and many other harsh conditions made it necessary to use circumcision to instil courage in the youths so that they grew into fierce and courageous warriors ready to defend their society.

It is perhaps for this reason, that those who showed extreme cowardice were removed from society by being beaten to death or isolated from many social duties. Such cowards, it was perhaps believed, could be an embarrassment to their society in the event of protecting it. Society was therefore better off without them.

Looked at from the modern point of view, the belief that non-circumcised men cannot participate in important social duties and that such people are cowards may seem to be baseless and opposed to reality. Men, circumcised or not circumcised, have the same potential and capability of performing all social duties. The fact that this may have been among

the reasons that made circumcision compulsory, makes the claim that this approach to circumcision violated the individual's liberty more strong. As from the modern point of view, the belief and practice of circumcision was littered with authoritarianism.

3.2 BUKUSU TRADITIONAL MARRIAGE AND INDIVIDUAL LIBERTY

The institution of marriage is common to all human societies. It is a means by which a man and a woman come together to form a union for the purpose of procreation.

In Bukusu society marriage was and is patrilineal. Marriage therefore means that a girl has to leave her parental home and join her husband at his parental home. Marriage was an institution in which every Bukusu member was expected to participate. A woman was married not only to her husband, but also in a sense to his lineage, that is, her reproductive powers were transferred to her husband's patrilineal descent group and in cases where her husband died, it was still her duty to bear children for the group. When a person married, the wife and his children belonged not only to him alone but to the corporate body of kinsmen.

Marriage could only be conducted between persons and groups of persons whose relations towards one another was not close.¹ The Bukusu were very careful observers of relationships especially when it came to the question of choosing a marriage partner. Marriage within the same clan or related clans was prohibited. Intertribal marriages were strictly abhorred since it was held that persons from other tribes had no knowledge of the Bukusu customs.

In addition to the above rules, a man's choice of a wife was dictated by the wife's hardwork and obedience. The chief virtue of a woman was that she be hardworking and obedient. The right qualities of a girl that any parent could want his or her son to marry included things like the girl's ability to till the land, obey her seniors and feed those who visit her homestead well.

The attitude taken by parents towards their children's marriage was mostly determined by considerations connected with the payment and reception of the bridewealth.

Parental authority over their children was considerable. The father especially could force his daughter to marry a man of his own choice and was also entitled to select a wife for his son and determine when the son would marry. Parents were eager to marry off their daughters as early as possible so long as the prospective husbands were in a position to pay the marriage cattle.

A typical feature in the Bukusu society was the preference by most parents to marry their daughters to older and wealthy men as these were seen to 'know' how to stay with wives. Such girls were usually married as second or third wives.⁴

Child betrothal was not uncommon in the traditional Bukusu society. Parents of either side (the boy's and girl's parents) could make arrangements without consulting the girl especially and the only time the girl came into the picture was when her husband came to fetch for her. Such marriages could also be arranged between a very young girl and an old man. This was usually in cases where the girl's parents had the man's debt. An agreement could be made to give the girl to the

man as a payment of the debt owed to him.

A more direct form of forced marriage was practised whereby a girl could literally be abducted by the boy and his friends and taken as a wife. Unfortunately this type of marriage was accepted by society and had to be consented to by both parties involved.

The Bukusu, in their traditional setting also practised sororate and levirate marriages. Sororate marriage was a type of marriage whereby when a wife died or was barren, her family supplied her husband with her sister or cousin as a wife, while levirate marriage involved widow inheritance in which a widow is inherited as a wife by her dead husband's brother or the elder son of her elder co-wife. The inheritor of the widow and children performs all the duties of a husband and father.

Both marriages were based on the idea that marriage contract was not broken by the death, or by the failure to reproduce of one of the spouses and that marital obligations continued throughout one's lifetime.

In Bukusu traditional society a lot of emphasis was put on polygamy. Polygamy was seen as the best way through which a man could accumulate and hold wealth. It provided a man and his society with numerous helpers; his wives and children who could also provide security in oldage. A man with many wives and a numerous offspring enjoyed a special position in his clan and society as a whole.

The desire for a numerous offspring was very great. The position of a barren woman was therefore the most despicable and the childless man the most ridiculous and disappointed of individuals in the eyes of his folk, and inevitably in his own estimation. To have children and many of them was the great ambition of every individual.

The childless parents tried all possible means to have children without which they sunk in importance and with it their social influence and consequently lost the position as contributors to the struggle for existence and were seen to be of no worthy to their society. The evolution of social prestige was therefore based upon an abundant offspring as a major type of wealth. Comfort in this life and security in the next was assured by abundant offspring.

The emphasis and practice of marriage in Bukusu traditional society had some negative effects on individual liberty.

Love often forms a powerful motive for marriage and usually sweeps aside all other considerations, but this was never a consideration among the Bukusu people in their approach to marriage. The desire of two people to marry one another arising from their mutual love frequently came into conflict with their culturally imposed restrictions. The typical attitude of parents towards their children's marriages ran counter to the typical wishes of their children.

In normal circumstances the children would wish to marry or get married to people of their own choice. Yet the restrictions imposed on them over the selection of partners by their parents and their corporate group limited this choice. The individual's liberty to choose a partner of his or her age, from any group or society was to a great extent limited.

In the cases of child betrothal and forced marriages as seen earlier on, the girls who were victims of these practices cannot be said to have had the right to choose their marriage partners and even the time of marriage. They were denied this freedom of choice.

Freedom requires that an individual should be given the opportunity to determine his or her destiny without external interference. He should be allowed without molestation to carry his opinions and desires into practice at his own cost. Mill explains why this should be the case:

mankind are greater gainers by suffering each to live as seems good to themselves, than by compelling each to live as seems good to the rest.⁵

It is therefore better for people to choose for themselves, even if they choose badly, than forcing or even persuading them to choose what others think is good. Liberty, as Malinowski states, involves the continued existence of unclosed possibilities of choice even after one has been taken, allowing a person to continue to do what he wants even after he changes his mind.⁶ The conditions of liberty requires that several alternatives of action remain open.

This cannot be said to have been the case with the Bukusu traditional setting. An individual, especially girls could be forced to marry people of their parent's choice other than their own choice. They had no right to determine the time of marriage and the partner.

Some girls used to show their feelings by eloping with other men of their choice. Such girls were often brought back by force half a dozen times but they could continue to run off to the husbands of their choice inspite of the punishments and hardships which they had to undergo. There were cases where such girls could be beaten to death by their parents and close relatives.

The boys had also to marry a girl of their parents' choice. The parents were entitled to select a girl for their son and if a son refused to marry the girl, he could be disinherited and even driven away from the home. In many cases pressure and persuasion by family members overrode consent and a sense of family loyalty in most cases inhibited many boys and girls from making their feelings known.

In a similar case, the practice of sororate and levirate marriages also touched on individual liberty. Decisions for such marriages were rarely made in consultation with the people concerned especially the female counterparts. Consent by the woman or the girl to replace her dead or barren sister or to be inherited by her husband brother was usually not sought. In some cases, even the male counterparts had to be forced to inherit a widow.

In Bukusu traditional society, is a society whose approach to marriage was authoritarian. Instead of leaving the question of marriage to the would-be couples, society played an even more role with more power in determining the choice of marriage partners than the couples themselves. The question of when and who to marry was not the choice of the would-be couples. It was decided for them by their parents and the corporate group.

In Bukusu society, one could hardly find normal unmarried adults. Society expected every man and woman to get a wife and a husband respectively. Marriage was the only way of obtaining full social protection influence and prestige in the society. An unmarried person was under his or her parents authority without any independent personal status with regard to property. Anybody who wished to secure for himself a prominent place in the elaborate network of kinship relations had to marry or get married.

In fact one can justifiably assert that marriage in Bukusu society was a compulsory rite of passage just like circumcision for men. Every normal Bukusu man and woman was expected to be a participant.

There were cases where a man or a woman married or got married because he or she really wanted to. There were equally many cases in which a person consciously believed that he wanted to marry a certain person while he actually found himself in a sequence of events which led to marriage with another person not of his choice. Individuals in such cases, are driven by fear of isolation or even more direct threats to their lives and comfort to conform to the demands of the expectation of their society.

It should also be noted here that the desire for children was so powerful a social force that it affected the freedom of those who were biologically incapable of getting children. Due to this disability they felt isolated, unwanted and despised by their fellows yet the disability was beyond their control. In the desire for children, society forgot to provide an allowance for sterile and impotent cases. People cannot be said to have freedom when society expects them to give or produce what they genuinely cannot. In their case, this social pressure and expectation becomes a threat to individuality.

What remains puzzling is why the Bukusu society made marriage compulsory and even went further to deny the young girls and boys their liberty to choose their own partners. Why were parents and the corporate group invested with the right of choosing partners for their sons and

daughters? Could the decision not to marry hurt others in the society's view?

The Bukusu society believed that marriage and its process of procreation was a religious obligation through which mankind perpetuates himself on earth. In this respect, someone who refuses to marry and have children quenches the fire of life. Every individual therefore had the responsibility of contributing towards the perpetuation of his clan and society on this earth. The existence of the clan and society depended on marriage and procreation. An individual who refused to marry and have children was seen to work against the continuity of his clan and the whole society. Such actions could not therefore be tolerated by the society and the only solution was to force the individual into marriage and procreation.

Society also knew that when a man or a woman get very old, they would need special care which can only be provided by their children. To take care of this, society had to compel all its members into marriage and procreation in order to avoid a situation where an old man or woman has no children to take care of him or her. The corporate group or the whole society cannot as a matter of fact be able to provide as much care as the children would provide to their old parents. Children were seen as their parents' security in old age.

The Bukusu society must also have emphasized marriage since it was the only way through which the society would continue getting young men and women to contribute towards its defence and economic matters.

The role of parents in the selection of marriage partners for their children might have been based on the experience of the parents as a result of their contact with many families and clans which made them more capable of identifying the right partners for their children and even more important, the right families and clans to marry from or get married to.

In Bukusu society, when a girl got married, she did not only get married to the boy but the whole family and clan. The parents, as the only representative of the clan at the family level, were the only people with the powers to select a girl to join the clan. The young boy could not be trusted with such responsibility especially when it involved the whole clan. The success or failure of such marriages were attributed to the parents of the two partners. Whenever such marriages failed the blame was usually put on the parents of the two partners but more often on the girl's parents. This of course is expected in a male dominated society.

The importance of this involvement was that the girl came to respect her husband's parents and relatives for she knew that her marriage and its continued existence depended on them. In the modern society where parents have been sidelined from marriage decisions, the girls no longer respect their husband's parents and relatives for their marriage no longer depends on them.

Given the above argument and Mill's principle of liberty where he argues that no one should be prevented from doing anything unless it harms his fellows, that a man should be free to do anything that does not harm other people, it can be argued that perhaps the Bukusu traditional

society was, in this line of thought, justified in its emphasis and practice of marriage. That an individual's refusal to marry, as argued out, goes against his society's interest and goals and is therefore an act that concerns others and is therefore amenable to punishment.

It can likewise be argued that since marriage involved the whole community it was justified to involve itself in the selection of a partner for its member since any mistake in this line was bound to affect the whole community and not the couples alone.

These arguments might be even more convincing in a communal society like the one in question where the individual was part and parcel of the whole society.

It must be stated here that perhaps from the traditional point of view, given that environment and conditions of life at that particular time, society was justified in its approach to marriage. From the modern point of view, an individual has the sole right of choosing whether to or not to marry. He should have the freedom of choosing when and whom to marry without any undue influence. It is desirable that the individual, even if he might not do it well, should do it as a means of his own education. There is little doubt that marriage in Bukusu society was suffused with authoritarianism.

3.3. THE AGE FACTOR AND INDIVIDUAL LIBERTY

An individual's age was an important factor in determining one's social status in the Bukusu traditional society. Seniority was determined by age.⁷

A necessary condition for obtaining a high social status and leadership was advanced age which was usually marked by the institution of circumcision age-grades. It was the oldest age-grade or more particularly the oldest members of the society whose opinion carried the greatest weight in matters concerning the society. They were seen to have acquired, along with longevity, a profound experience of people and things.

In Bukusu society, the ideal was the exemplary past which the older members of society were more acquainted with than anybody else. Oldage was therefore a necessary condition for officiating at all important social events including rites of passage and sacrifices.

The authority implied in old age was strengthened by notions connected with the ancestor cult. It was believed that spirits remember the treatment afforded to them while they were still living persons and that they either haunt and trouble or spare and help their living relatives according to the treatment received when they were alive. Old men are therefore feared as potentially troublesome spirits, a fact which considerably adds to their authority. In addition, their power of uttering a curse, and especially the much feared dying curse, was an all powerful force at their disposal.

This fear and the respect the living had towards the older members of society made them powerful individuals in the society.

Knowledge and wisdom was associated with old age. Age was the criterion of wisdom and knowledge. Knowledge was the awareness of ones traditions which was the collective experience of the community.

It constituted the totality of all that successive generations had accumulated since the dawn of time both in spiritual and practical life.

The youths were identified with that which was immature, unfashioned, unripe, weak, negligible, pitiable and incomplete. That given their age, they could not know unless they are taught by the aged. They could not therefore be allowed to talk before the elders or even participate in their discussion.

This belief, it is important to note, remains a dominating abstract conception of the youths in the whole country.

The old age fact in Bukusu society can in some ways be likened to the idea of the philosopher king in The Republic of Plato.

The old men in the Bukusu society were seen to have acquired a lot of experience and wisdom. They were the people who were gentle and whose minds were free from sexual desires. They were best suited to rise above the petty interests and jealousies characteristic of the youths. They were also free from greed. Armed with these qualities the elders were to lead their communities and use their influence for the solidarity of the whole society.

Likewise, Plato holds the view that it is essential to have leadership in the hands of philosophers. What Plato means by a philosopher is a man who is capable of a high degree of conceptual thought and who is not wedded exclusively to the empirical information about the actual world. He is a man who is above the level of acquired taste and prejudice. In all his actions, private or public, he is a

man who keeps before him the idea of Goodness. He is a lover of truthfulness and intelligence. Such a man, Plato is convinced, is most suited to deal with the situations of government, with a proper understanding of them in all their ramifications.⁸

Plato in fact gives a plan or a scheme of education for the training of philosopher rulers to instil in them the above qualities. This education goes on until the individual attains the age of fifty five.

In both the Bukusu traditional thought and Plato's thought, there is the desire to leave leadership to people of age with good leadership qualities. They should be knowledgeable and wise.

The reasons raised by Plato in justifying leadership by philosophers can, therefore, to some extent be applicable in justifying the age factor as a criterion to leadership in Bukusu traditional society.

It is however important to note that unlike the Bukusu tradition society, the Greek City State had defined constitutions and laws and that the philosopher king had to go through formal and instructed educational system.

The idea of the age factor and the beliefs surrounding it had some negative consequences on individual liberty. The youths and even those who were middle aged must have been denied the opportunity to participate in the decision making and other social affairs of their society. In a settling of the greatest freedom possible, society

cannot deny such people the right of making their own decisions and participating in the affairs of their society.

In a free society where individuals, young or old enjoy all their rights, they get that essential opportunity of developing their potentialities to the fullest extent possible.

The old members of society, given their experience, are justified in directing the youths especially the very young below the age of eighteen. But the youths especially those above eighteen should be allowed by their elders to think freely and to express their thoughts without which they would grow into elders with no thoughts worthy of expression. When the youths and especially those in their late youth years are denied the freedom of discussion, thought and participation in social affairs, they grow up into less developed persons. Personal self-consciousness, intelligence, and creativity develop best in a free atmosphere where men, old and young, male and female, can think together and talk freely.⁹

Isolation of a section of members of society from the decision making in their society, on the pretext that they are young and inexperienced when some of them are in fact mature married men, as was the case of Bukusu society, is a perfect violation of their liberty. Hardly any importance was placed on their ideas and opinions. Such an outlook is apt to deny them the chance of learning to make decisions and developing their potentials for the benefit of their society.

Even The Republic has been subjected to a great deal of criticism for its caste system and its lack of a proper regard for the individual. The emphasis on the community at the expense of the individual and its social stratification or the caste system works against the development of individuality.

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CHAPTER FOUR

4.0. INDIVIDUAL LIBERTY AND OTHER RELIGIOUS BELIEFS

4.1 THE BUKUSU ANCESTOR CULT AND LIBERTY

The belief that life survives death is one of mankind's oldest convictions found in all societies. Almost all religions in the world have this belief in common. Although the concept of ancestors and its related beliefs is not universal, the belief in the immortality of the soul occurs in all cultures.

The belief in immortality has always been held in one form or another by a larger majority of mankind but critical reflections brings forth a number of apparently strong reasons to regard that belief as held by the Bukusu in this case, as illusory. It might be argued that people believe in immortality because there is no reason for not doing so since it has neither been proved nor disapproved. How this thought came to the mind of mankind is actually still a philosophical puzzle but what is clear is that man has never existed without the thought of immortality.

To say that death is merely a transition to another form of existence is indeed to express a significant metaphysical proposition. The belief in immortality pictures a person as consisting of the body and the mind. This belief holds that the mind or as usually referred to, the soul, survives after the body dies and disintegrates. When the body disintegrates in the grave or is burned to ashes or is eaten by wild animals, the mind which is non-material survives and continues to exist.

A person however is identified by his body but not by his mind. One in fact wonders whether the mind or the soul can be a sufficient identity of a dead person or whether it is possible for the mind to exist without the body. In thinking about post-mortem existence, we shall be thinking of a condition in which there is no body for identity for it is dead in the grave, burned or eaten by wild animals.

The existence of the mind depends on the presence of a functioning nervous system, and as such it is not logical to think of the existence of the mind in the absence of the body.

The Bukusu belief in life after death did not however hold the view of disembodied existence after death. They had no distinction between the mind and the body. When they talk of their living dead, they usually imagine them as having bodies similar to the ones they had when they knew them, as well as memory, intelligence and other features similar to the ones they had in this life. The dead were therefore seen to continue to exist very much as they were, looking as they did and in brief as whole persons with body and mind though invisible.¹ But whether the dead would have the body of a man of a certain age, say the age at which he died and remain forever at this age or would grow older cannot be established.

The belief in life after death as held by the Bukusu is a religious belief held only through faith on the part of the believers. The belief is an object not of reason but faith which cannot be defined in terms which are intelligible to reason.

Otherwise there is doubt on the reality of life after death in whatever form one might think of. On death, the body disintegrates and eventually nothing of it is left. How such a body resurfaces in the world of the dead with life is highly unclear and looks impossible. It is also not possible for a person to have no physical body, but be able to think, feel, have memories, and sense experience. Every step towards the belief in life after death is riddled with difficulties. It is not just that we are accustomed to think of people as having bodies and can't get out of the habit. The fact is that to imagine the dead doing things as will be seen in the Bukusu traditional society without the body is logically impossible.

Despite the arguments that might be presented here, the Bukusu believed that death does not terminate the existence of the human individual and his spiritual life but rather transforms the nature of his existence. Death was seen as a departure and not a complete annihilation of the person. When a person dies, he simply moves over to join the company of the departed in the hereafter. The hereafter or the abode of the dead, was thought of as a mere continuation of life more or less as it is in its human form. Personalities are retained, social and political statuses, sex, human activities, wealth and poverty remains unchanged as it was here in the world of the living. The dead were thought to possess most qualities of the living, they could think, feel, and act like a living person. The Bukusu believed that the dead and the living formed one community. The dead continued to be members of their living families, clans and the whole society.

The ancestors or the living dead were the most powerful spiritual forces in the religion of the Bukusu. They occupied the ontological position between God and men. They wielded a lot of power over the living. Their power was immeasurably magnified and sacred and therefore removed from the controls of cooperation and reciprocity, conscience and love as they work among the living. The supernatural status accorded to the ancestors exhibited major differences for although one could argue to a point with an elder, no one questioned the wisdom and authority of their ancestors.

The reason why the Bukusu could invent active supernatural beings out of the dead and invest so much power in them is a question worthy some explanation. It is perhaps possible that due to the inevitability of death and its consequences, the Bukusu had to devise ways of denying it (death) the significance of annihilation. Sorrow over permanent separation and man's persisting memory of the dead may have become the basis for the conception of life after death. Man could not live in a constant state of great fear. For if he continually feared death his life could be intolerable. He would have no strength or desire to do anything. To water down this fear, life after death was created by man himself. Existence was extended beyond death and in fact such existence was made to appear attractive by investing more power in the dead. Death was merely presented as a transformation which magnified one's powers and authority over the living. It was presented to appear as if it was not actually a separation since the dead's membership in their communities also went beyond death.

Another possible explanation could have been due to the incomprehensible world in which the Bukusu lived at the early ages. They lived at the mercy of forces which they could neither understand nor control. The feeling of helplessness was intolerable to them and they accordingly devised beings whom they endowed with the power to control the forces which were by them uncontrollable. These were the so called living dead or more specifically the ancestors.

It should be noted at this point that not any dead person could become an ancestor. Oldage, wisdom, physical and moral integrity, passage through life without deviating from its normal course, and communal identification with ones society constituted the attributes of becoming an ancestor. When such persons are alive they are accorded a lot of respect and this is continued and enhanced when they are dead. The living honour them through sacrifices and offerings and by adhering to their directions. It was believed that the dead demanded not only proper handling and burial of the body, but for many years were sensitive to the way their living relatives behaved and related to them.

Ritual ceremonies carried out during funerals, burials and after burial were meant to ensure that the dead arrived safely at what was believed to be their abode, 'emakombe'. In addition the customary preparation and propitiation of the dead was a result of the fear of their (the dead) retaliation if that was not done.²

The living were expected to maintain close ties with their ancestors and to adhere to their guidance. The ancestors had

unchallengeable authority over the living and all the goods and ills of life were in their hands. To break ties with the ancestors was tantamount to threatening the living community with destruction. When the ancestors felt offended, neglected and disobeyed, they became angry and demonstrated their feelings by some vindictive actions. It was however believed that the ancestors were purely dedicated to the well-being of the living and that when it came to their inflicting punishments on the living, the intention was merely to warn them against their unwanted behaviour.

The ancestors could give useful information to the living and in cases of illness, they could reveal the herbs to be used, when danger threatened the living, they made known the action to be taken to avoid it. Through all these and many others, were seen their benevolent action in looking after the needs of the living. But all these could however only be forthcoming at a considerable sacrifice from the living.

The ancestors were the guardians of the moral and religious norms and values on which the social order rested. Anybody who violated these norms and values was an offender not only against the ancestors but the entire community composed of both the ancestors and living. The ancestors guarded the preservation of old methods, norms and values. The values of the ancestors had to remain being the values of the living. Things had to remain as they were without any signs of change. The ancestors could not smile favourably on any kind of change. The force for conformity and conservatism was strong.

Individuals had to live in a regressive manner. All their actions had to find justification in the past. Things had to be done in strict adherence to the society's traditions and customs which basically constituted the experience and wisdom of the ancestors. An individual had to submit to the authority of his traditions and accept it as a stimulus and norm of his behaviour.

It was not the task of an ordinary individual to alter the established practices of his society. Anyone who attempted to do so could suffer grave consequences. Where changes were necessary, the ancestors could make their will known through their representatives.

In the belief that the ancestors were capable of doing anything, blessing and assisting in times of difficulties, punishing injustice or any vicious crime, the Bukusu adhered slavishly to traditions and performed their religious obligations sincerely and devoutly.

They accepted the duty of caring for and preserving their ancestors with the aim of converting any of their hostility to friendship. The desire to gain ancestral good will and avert their anger was expressed in various religious rites centering on the ancestors.

It was believed that everything from family health, fertility, to taking of right decisions was of interest to the ancestors. Upon them depended everything the living needed for survival such as the fertility of the soil and the reaping of plentiful harvest, fertility of women, and in brief, the success of all human endeavours.³

Any signs of ill health or abnormality in the family, clan or the whole society necessitated appropriate measures to avert the situation. The ancestors were seen as the causal agents of the deteriorating situation and as the agents for remedying it. Close relationship between the living and the ancestors was established through regular sacrificial offerings and other ritual observations.

It appears, however, that it was impossible for a man to satisfy fully the demands of his ancestors. However conscientious a man could be in discharging his ritual obligations, there was always a loophole. Ancestral demands were extraordinarily wide and many, and in most cases ritual debts to the ancestors passed from generation to generation.

The belief in the ancestors and their power over the living, made individuals in the Bukusu society submissive to their control. For a Bukusu individual, the existence of the ancestors and their power was as real as, for example, the existence of electricity and magnetism in the modern world. The Bukusu did not doubt this existence and as such their submission to ancestral control was total and faithful.

The belief in life after death and especially in ancestorship ensured that the old and weak members of the society were cared for. At old age, a person becomes weak and needs a lot of care. The belief that if such people are not taken good care of, then they would turn against their living relatives when they die, enhanced people's care of the old and weak. This also enhanced the authority of the old over the

young members of the society. This belief, to a great extent, also helped to maintain unity and cohesion among the various families and clans of the Bukusu society. The fear of ancestral wrath helped to maintain this unity and cohesion.

Despite such positive roles, the belief in life after death and in this case the belief in ancestors touched negatively on individual liberty of the Bukusu people. The ancestors were invested with sacred authority which no human being could dare question. This authority over the living tended to be authoritarian towards the living. The individual had to submit to whatever was believed to be the wish or demand of the ancestors without questions. Authority in this sense was that power invested in the ancestors by the living to influence events in the world of the living which unfortunately surpassed human challenge. The ancestors enjoyed overwhelming authority over the living. To the Bukusu, this authority was real and practical.

The ancestors' denial of change and therefore the insistence that the living live in strict adherence to the already established traditions and experiences was a belief that denied them the freedom to frame their own forms of existence and create changes suitable to themselves and the prevailing circumstances. Their critical questioning of the established traditions was forestalled by attributing their (traditions) origin to the powerful ancestors and by endowing the latter with a sacredness which made these traditions unquestionable. The necessary freedom of criticizing the past with the view of creating new and more relevant knowledge and inventions was curbed.

There is often the need among individuals, for social differentiation to be different from the next chap , to be outstanding or accented but not live, think and work exactly as ones fellows. A free society must grant individuals the freedom to fulfil this desire. "There is no reason", Mill argues, "that all human existence should be constructed on some one or some small number of patterns".⁴ Instead, Mill advocates for conditions where there are different experiments of living so that each mode of living can be proved practically when anyone thinks fit to try it.

Thus, if society, like was the case of the Bukusu traditional society, takes a constricted view of desirable modes of existence making it difficult for anyone to live in any other way other than the accepted ones, members of such a society will be prevented from experiencing new modes of existence some of which could be more valuable to the society.

The Bukusu society advocated for sameness and conformity as opposed to individual variability. The individual had to adopt entirely the kind of personality offered to him by his cultural customs. He had to become identical with the others for this was what the ancestors demanded.

Inequality or rather variability is the necessary result and part of the justification of individual liberty. If the result of individual liberty did not demonstrate that some manners of living are more successful than others, much of the case for it would vanish. A

free society is therefore characterized by inequality among its citizens. This is a consequent of the wide range of differences in individual capacities and potentialities subjected to a free environment. Only an unfree society could encourage beliefs that advocate for sameness and conformity. Mill is opposed to such a society when he says that:

It is not by wearing down into uniformity all that is individual in themselves, but by cultivating it, and calling it fourth, within the limits imposed by the rights and interests of others that human beings become a noble and beautiful object of contemplation,.... In proportion to the development of individuality, each person becomes more valuable to himself and is therefore capable of being more valuable to others.⁵

A free society leads to the development of individuality which is valuable both to the individual himself and the society.

The argument here is that the Bukusu society's desire for sameness sanctioned by the belief in ancestors, killed individual variability denying them the freedom of framing their own modes and patterns of life and the creation of new relevant changes characteristic of any human society. Individuals had to follow old patterns of life which were handed down to them by their dead ancestors. Such a society is the exact opposite of a free society.

Any living person who ventured to question the adopted experiences and knowledge and to offer alternative and more relevant opinions was threatened by not only the supernatural wrath but also resentment from his fellows. Mill, in disagreement with such a belief states that:

every age has held many opinions which subsequent ages should not be forced to uphold. Many opinions now general will be rejected by future ages, as the present must have rejected the past.⁶

There is, in Mill's opinion, always the need of persons to not only discover new truths, and point out when what were once true are no longer, but also to commence new practices and set the example of more enlightened conduct and better taste and sense in human life. Liberty requires that men must have the right to seek the truth, to know and argue freely according to their conscience without hindrance or restraint. The suppression of new opinions impedes the discovery and acceptance of truth.

Forcing individuals to live in accordance with standards lived by their ancestors is a violation of their freedom. It blocks man's full human development, it stands in the way of the development of his reason and critical capacities since all that was required of an individual was to mostly copy the standard of life lived by his ancestors. The individual lives and does his things as they were done by the generations that preceded him.

In such cases, the individual's faculties are not put into proper use and consequently his human capacities are withered and starved. The individual is not given the chance to put his faculties into full use. All he is expected to do is to live according to past experience. Under these circumstances the individual loses hope and enterprise.

The aim of this argument is not to advocate for absolute freedom nor deny the fact that the belief in ancestors played some positive roles in the Bukusu society.

Absolute freedom as D.D. Raphael puts it:

soon leads to no freedom at all. Complete freedom for all means the absence of order, the absence of law, anarchy, chaos.⁷

Given the level of development, both social and political, the Bukusu society may have been justified in using the ancestral cult in maintaining order and some minimum standard of behaviour on the part of all which was indispensable for the pursuit of good life or happiness on the part of its members. But society is only justified in conforming the social offender but not suppressing the normal and social individual, the social thinker. The normal and social individual must have the freedom to follow his own bent, to do whatever he likes as long as he maintains peace with his fellows.

Joad echoes this views when he writes that:

the presence of force.... is required not against the normal, social citizen, but against the exceptional anti-social citizens whom the activities of the normal citizen call into existence that he may be restrained from rendering those activities impossible.⁸

The ancestral authority unfortunately aimed at goading every individual into common modes of existence as lived by them (the ancestors). The belief in ancestors and their powers was as a matter of fact a creation

of the living. Their existence and their powers did not exist independent of the living. They were beings created by the minds of the living yet to the believers they were real and independent beings outside the living individuals.

Every generation ought to be free to determine its own destiny as required by the changing circumstances. It is the living and not the dead, that are accommodated. When a man dies, his power and his wants cease with him, and such a man as a matter of fact loses any participation in the concerns of this world and should have no authority controlling or directing the living. Those who have quitted the world of the living cannot in actual fact have authority over the living.

T. Paine reacts to such ideas when he writes:

Every age and generation must be free to act for itself, in all cases, as the ages and generation which preceded it. The vanity and presumption of governing beyond the grave, is the most ridiculous and insolent of all tyrannies.⁹

The idea of men or generation of men having authority of leadership over the living long after death is a denial of the living the right to determine their own destiny as it is supposed to be.

Let it be known here that this study is not out to blame the dead, who were in fact innocent, but the society for holding and upholding these beliefs which very much affected individuality.

4.2. INDIVIDUAL LIBERTY AND TABOOS

In the Bukusu traditional society there were many things that a person could not do due to some kind of restraints. Some of these prohibitions were built on the concept that some things were inherently harmful and could not therefore be done or touched. A breach of these prohibitions was thought to be followed by evil consequences of a mystical order which could only be averted by the speedy performance of a lustration rite. Prohibitions, whose violations led to supernatural wrath or necessitated ritual purification, were called taboos, 'Kimisilo.'

The ritual purification was to avert the harmful consequences that was sure to follow on violation of a taboo. It was believed that if a person violated a taboo and failed to submit himself to this ritual purification, he could be exposed to danger and unpleasant eventualities which could even spread to the whole community of the victim. The victim becomes a sociological virus which could spread to the others.

E.O. Ayisi has argued that the concept of taboos presumes that the person has a ritual value or a sacred entity which must never come into conduct with certain objects, actions or persons. Any conduct would produce a negative effect depriving the individual of the qualities which maintain his well-being. This then becomes a source of danger to the individual and even the whole society. The concept of taboos is therefore aimed at keeping a part persons, objects and actions with such relationships.

The real reasons for taboo observances are never given. Thought in such matters is never considered necessary. The only explanation given is that taboo violation brings evil. That they are the society's customs which should not be questioned, or else disaster would befall the individual and the society concerned. The causal connection between the violation of a taboo and its consequences usually lack a justifiable rational basis. Despite this shortcoming, the use of taboos plays an important role in the society.

According to Cunter Wagner, the origin of taboos can be attributed to some influential clan-ancestors who may have attributed serious misfortunes and calamities to the things and actions prohibited in the taboos. The rules may have required members of the clan or even the whole society to avoid those things and actions suspected to cause misfortunes and calamities. These rules were sanctioned by threats of curses upon anybody who violated them. Gradually these rules were adopted by new generations as taboos.¹⁰

The individual in Bukusu society was all long beset by different types of taboos and these were more intensified during the rites of passage and other ritual observances. There were taboos touching on almost every aspect of human activity in this society.

4.2.1 SOME EXAMPLES OF BUKUSU TABOOS

1. There is the taboo that guides in-law relations which is still the most pronounced and rigidly enforced taboo in the Bukusu society.

This taboo required that social distance be maintained between a man and his mother in-laws, and between a woman and her father-in-laws. Any physical contact between these people was prohibited. At no time could these two sides get into physical contact, be under the same roof, or even get in contact with anything that belongs to either sides. The most dreadful of all was to see ones mother or father in-law naked or vice versa.

— The violation of this taboo would lead to the death or insanity of the victim unless a ritual purification is observed.

The reason behind this taboo was to maintain a very formal relationships amongst the people concerned. This was to avoid cases where these people would get involved in informal relationships resulting into disrepect, conflicts and even sexual intercourse between a man and his mother in-laws and a woman and her father in-laws.

2. It was a taboo for a man to have sexual intercourse with a woman on the eve of an important social activity or event such as long journeys, war raids, hunting and ritual ceremonies. Violation of this taboo could lead to the death of the man concerned during the event or activity.

This was however to avoid cases where a man would get exhausted due to his involvement in sex and consequently be unable to perform his duties well during the important events and activities.

3. It was a taboo for a person from a funeral ceremony not to go straight to his home after the ceremony. It was perhaps believed that

a person who attends a funeral ceremony may get in contact with the germs that led to death. Rather than visiting someone's home, such a person was required to go to his own home, clean himself before making any visit.

This taboo held that if such a person visited somebody's home before his, death would befall the home he visits.

4. A woman and especially a pregnant woman was not allowed to eat chicken, eggs and wildgame like rabbits. If they did, they would develop wounds on their back, or die on delivery of their babies.

It is likely that expectant women were denied these foods, since, most of them being body-building foods, would lead to a big foetus which could present problems to its mother during delivery. The other probable reason may have been simply men's plot to deny their female counterparts these nutritious foods so that even in their absence, the women would keep the food intact for them.

5. An adult man or woman should never defecate inside a house or else his or her offsprings would be struck by misfortunes. Perhaps this taboo was to avoid cases where adult people defecate in houses which in itself is a very bad thing. It was also seen as a bad example to the youths which had to be stopped at all costs.

6. It was a taboo to sweep a house after sunset. To do this was to throw away ones wealth. This was however to avoid cases where valuable small things could be swept out of the house without being seen due to darkness.

The above are a few of the numerous taboos in the Bukusu traditional society. Whenever they were violated, a ritual purification ceremony had to be performed which usually involved the slaughtering of an animal and the smearing of the victims with its chyme to cleanse them against the otherwise inevitable consequences. The smearing of chyme on the victims could scare away the spirits that cause misfortunes.

It is clear that taboos played some positive roles in the society. They instilled in the members the sense of distinguishing what is good from bad, right from wrong and clean from unclean in accordance with the beliefs of their society. A sense of responsibility was also instilled into the members whereby, whenever one violated a taboo, he had to bear its consequences usually as an individual.

Taboos served as moral sanctions by creating fear in the minds of those who could have otherwise violated their society's morals and values with impunity. Through taboos, the norms of society were also passed to the new generations as a mechanism of intergration. They also strengthened tenets of religion and its sacredness.

4.2.2 EFFECT OF TABOOS ON INDIVIDUAL LIBERTY

Individuals in Bukusu society were thickly beset with taboos so much so that every activity atleast demanded some taboo observance. These observances must have affected the individual's freedom in his daily activities and designs. These taboos unfortunately depended upon an element of compulsion, they depended upon the individual's fear

of the retribution of the ancestral spirits. They were coercive towards the individual whereby coercion implies both the threat of inflicting harm and the intention thereby to bring about certain conduct.¹¹

There were taboos which required individuals to keep away from certain members of society. Others prohibited the utterance of certain words or beliefs which were held to be sacred. Some individuals were prohibited from performing some duties or activities and access to some foods. The individual could not relate with others freely, eat, dress, act and do everything freely. There were always some taboos to be observed in the cause of these activities.

The food taboos for example, put a strain on the availability of certain foods to them. This usually were foods rich in protein such as chicken, eggs and wildgame. Such taboos stood against man's freedom of doing whatever he wants as long as he keeps peace with others.

The individual could not do whatever he wanted since he was beset by numerous taboos requiring him to follow a certain line of conduct that conforms to the social norms and values. Most of these taboos very much touched on individual liberty restraining the individual's initiative and enterprise.

4.3 INDIVIDUAL LIBERTY AND THE PRACTICE OF WITCHCRAFT AND SORCERY

Witchcraft and sorcery formed an integral part of the Bukusu traditional religion by virtue of their reliance on supernatural powers. The Bukusu recognized the natural causes of death such as diseases and

physical accidents but in every case no real satisfaction was felt unless an act of sorcery or witchcraft could be invoked to explain why such a natural cause produced the death of the person. Whenever death occurred, the Bukusu therefore looked for a suspicious character as the cause of the death.

Witches and Sorcerers were usually motivated by hatred, envy and greed to attack others. Conflicts amongst family members and neighbours could also lead to witchcraft and sorcery.

The Bukusu were by no means indifferent towards the dangers which in their opinion, were constantly threatening them from witchcraft and sorcery. They tried to avoid arousing the envy or hatred of witches and sorcery by refraining from boasting of their health or wealth, or doing anything which deviates very noticeably from the ordinary life that all people led. If a person harboured suspicion against a witch or a sorcerer, he could avoid him or her as much as possible so as to prevent him or her from procuring objects closely associated with his body or from poisoning his food. A person could not accept food at the suspect's place, and if he could not do so without offending his host he could see to it that his host eats first to prove that his food is not poisoned. It was, in fact a rule of etiquette for the host always to taste first any food or drink that he offered to his guests.

In some areas where there was too much witchcraft, families affected left their homestead to escape the threatening danger. The further removed a man's homestead was from his neighbours, the safer he considered himself to be from witchcraft and sorcery.

The Bukusu people believed that if they became rich, rose in social position, if they were talented as hunters, fighters and in many other activities, they could be targetted by witches and sorcerers. Few, therefore, dared to be more industrious and to accumulate more wealth than their fellows, they did not dare to show great skill or venture out upon new paths of progress for fear of being targetted by witches and sorcerers.

In this way, the belief in witchcraft and sorcery can be said to have directly contributed to conservatism and lack of progress in the Bukusu traditional society.

In all that an individual did, great care was taken to safeguard himself and his family from the evils of witchcraft and sorcery. The individual had to be careful with his movement and association lest he bumps into witches or sorcerers or into their medicine or he associates with witches and sorcerers. Association was limited to close relatives and friends who harboured no suspicion against each other. Individuals also guarded their personal properties lest they got into the wrong hands. They could not boast of their health, wealth or any success for this could provoke witches and sorcerers. They had to conduct themselves carefully not to offend anybody who might turn up to be a witch or sorcerer.

In an environment where people live in constant fear or threat to their lives from external forces such as witchcraft and sorcery as in this case, they cannot be said to be free. The fear of these practices

affected the individuals liberty in his daily endeavours. Individuals movement, association, action and initiative were to some extent limited by the belief in witchcraft and sorcery.

The Bukusu people could only be relieved of these fears only when they relinquish their beliefs in the reality of witchcraft and sorcery and cease to believe that others can harm them through the use of mystical powers. The impact of western education and social forms has been slowly eating away these beliefs.

The beliefs in witchcraft and sorcery however played some positive social roles in the Bukusu traditional society. They acted as forms of social control in discouraging unacceptable behaviours in the society. The fear of witchcraft and sorcery believed to be practiced by neighbours, age-mates, or co-wives served as a warning to individuals to maintain the proper behaviour towards other members of society. In so far as witches and sorcerers were believed to send sickness on men in return for a breach of a rule of right behaviour, we had a religious sanction to punish wrongdoers. It was therefore wise for one to fulfill his obligation to others lest they employ witchcraft or sorcery to get their rights.

4.4. CURSES AND INDIVIDUAL LIBERTY

In Bukusu traditional society, people were believed to be able to exercise mystical influence over others by uttering a curse or pronouncing a blessing over them. Real efficacy was attached to curses

uttered by elderly persons. By uttering a curse the curser calls down all the horrible visitations which supernatural beings alone could effect. Sickness, bad luck, accidents, blindness, sterility, among other misfortunes were believed to follow and down upon the cursed.

Curses operated in such away that they could only be levelled against members of ones own clan or near relatives. The victim of the curse had also to be junior in age to the curser.

Curses were, in actual fact, spiritual weapons that were used by the weak and elderly members of society to impose their wishes on their juniors. The fear of curses among the youths was great and they had therefore to adhere to the will of their elders and more particularly their parents. They could not dare challenge the social structure and traditions imposed on them by their elders lest they be cursed.

Curses were evil precisely because of the fear they created in individuals. This fear made the individual submissive to the wish of the others even if this contradicted his conscience. Free action in which a person pursues his own aims by the means indicated by his own conscience was to some extent limited by the fear of curses by their elders. The individual had at several times to serve not his own wish but the wish of other people. The individual had to operate within the social structure accepted by his elders without any dissent. In the event of any deviation the individual risked being cursed by the elders.

4.5 SACRIFICES AND INDIVIDUAL LIBERTY

In the Bukusu traditional society, the individual had to offer sacrifices periodically to his ancestors when things were not going well and at important points in his life. He had to offer occasional sacrifices to ensure the protection of crops or livestock, to increase the fertility of women or livestock, to protect the household from evil spirits and also to show gratitude for the encestors' benevolence exhibited through good harvests, availability of rain, fertility of women and livestock and in many other ways.

Sacrifices served both as gifts and fines paid to the ancestors in return for their help and forgiveness respectively. By sacrificing to them, the ancestors are compelled to give back benefits to man or forgive man for his wrongs.

In the Bukusu society, sacrifices were usually done next to a shrine known as 'Namwima', built for the ancestors for whom the sacrifice was meant. Here the ancestors could be appeased or 'invoked for help, guidance and protection.

In most cases sacrifices involved the killing of an animal. The killing of animals for sacrifices was based on the following reasoning: it was held that for a man to join the abode of the living dead, he had to die. Death was therefore the only bridge to the world of the ancestors. If one therefore wants to make a sacrifice to the ancestors and ensure that it reaches there, it has to be transmitted a long the same metaphysical route travelled by the ancestors. The animal has to be killed or rather

it has to die, since death is the only bridge to the ancestral world. The killing of the animal and the elaborate rules followed in the process of sacrificing was aimed at ensuring that the sacrifice reached its destination.

The requirement that an individual had to sacrifice frequently to his ancestors in the event of misfortunes or good fortunes and at important points in his life had some negative economic implications to the individuals concerned and even the society as a whole. Individuals and society as a whole had to lose so many animals for the sake of sacrifices to their ancestors. The belief in the efficacy of sacrifices cost society a lot of its wealth especially when its members relied on livestock than anything else. There is no doubt that these animals could have been used in other more useful ways especially in seasons of food shortages. Because of the belief in sacrifices, individuals had no other choice but to sacrifice. For them, the reality of sacrifices was undeniable. They could not survive without sacrifices. Nobody could therefore dare refuse to offer sacrifices whenever one was alive.

In an environment where an individual believes he can only continue existing if he offers part of his wealth to some powerful forces in the society then such an individual cannot be said to be free. The right to live is put under the wish of other forces and denied to the individual.

A Bukusu man had no other choice but to sacrifice to his ancestors for his well being and even his existence was believed to depend on the

ancestors. The individual had no right to question such an action. He could not make his own choice whether to or not to sacrifice. Whenever a sacrifice was due, he had to make it. The demands and wishes of the ancestors were absolute, they had to be obeyed not questioned.

In the foregoing two chapters an examination of the effect of the Bukusu traditional religious beliefs and practices has been made. Behind all these beliefs and practices lies a fundamental experience, a feeling of the existence of something or some beings beyond the living beings, a mysterious force or power which cannot be seen and fully understood but which is at work nevertheless. It is this power or force that kept alive the beliefs and practices of the Bukusu people. This power and its agents were the guardians of the Bukusu religion. It was the power that was in operation in many religious practices such as curses, witchcraft and sorcery, it was the power that the supernatural beings used to control the living.

The rites of passage, the belief in ancestors, taboos, curses, witchcraft and sorcery all featured a reign of this force. It is a force whose possession gives one power to control others. The highest concentration of this force was in the hands of God, followed by the living dead and other spirits and then the living. The ancestral use of this force in controlling the living, was characterised by intimidation and annihilation trimming individuality with authoritarianism and vindictiveness. The living had to observe all rites of passage, submit themselves to their ancestors, and observe all religious beliefs and practices.

Among the living, this mysterious force was concentrated more in the hands of the elders and religious specialists. It is this that gave them more power over the other living members of their society.

The existence of this force was at the base of the Bukusu traditional religious beliefs and practices some of which have been examined and seen to have been authoritarian towards the individual. The authority of this force was sacred and no living person could challenge it. The sacredness of this authority which unfortunately penetrated into every aspect of human life, accounts for the authoritarian tendencies of the religious beliefs and practices.

In the next chapter, an analysis of the position of the individual in Bukusu traditional society is made. Given the important role played by religion and its authoritarian tendencies, this analysis will address itself particularly to the question of individuality in the Bukusu traditional society.

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George Hegner, ibid.

V. A. Smith, The Constitution of Liberty, London, Routledge and Kegan Paul Ltd., 1940, p. 12.

4.6 NOTES

1. See Cunter Wagner, The Bantu of North Kavirondo London, Oxford University Press, 1949, pp.159-167.
2. Ibid. pp. 469 -480.
3. Ibid., pp.447 - 497
See also Kayode, J.O.
Understanding African Traditional Religion.Ibadan, 1984, pp.19-33.
4. J.S. Mill, On Liberty and Consideration on Representative Government. Oxford Basil Blackwell, 1948, p. 60.
5. Ibid p. 55.
6. Ibid. p.11.
7. D.D. Raphael, "Liberty and Authority", in Griffiths A.P.. (ed) Of Liberty. London, Cambridge University Press, 1983, p. 1.
8. C.E.M. Joad, Liberty Today. London, Watts and Co. Ltd. 1934, p. 128.
9. Mendel, A.O., (ed) The Living Thoughts of Tom Paine London, Cassell and Company Ltd., 1942, p.115.
10. Cunter Wagner, Op.cit.
11. F.A. Hayek, The Constitution of Liberty. London, Routledge and Kegan Paul Ltd., 1960, p. 134.

CHAPTER FIVE

5.0 THE INDIVIDUAL IN THE BUKUSU TRADITIONAL SOCIETY

In the Bukusu traditional society, the individual existed as part and parcel of the corporate group i.e. the family, clan and society. He could not detach himself from the corporate group. The corporate group required all its members to conform to its traditions and be part of it. It had, therefore, to mould the individual into conformity with its traditions. Uniformity among its members was the desired goal of every corporate group. Writing generally on traditional African societies, J.S. Mbiti states clearly that:

the community must therefore make, create or produce the individual, for the individual depends on the corporate group.... when he suffers he does not suffer alone but with the corporate group, when he rejoices, he rejoices not alone but with his kinsmen, his neighbours and his relatives, whether dead or living.¹

E.A. Ruch and K.C. Anyanwu echoes the same view when they write:

The whole African society, living and living dead is a living network of relations almost like that between the various parts of an organism. When one part of the body is sick the whole body is affected. When one member of a family or clan is honoured or successful, the whole group rejoices and shares in the glory, not only psychologically (as one would rejoice when one's local soccer team has won a match) but ontologically: each member of the group is really part of the honour.²

The corporate group was closely concerned with the conduct of the individual to see to it that he did not go outside the limits and

standards of his society. The group aimed at establishing common modes of existence for its members so that none could get into problems searching for modes of existence which, according to the above views, could hurt the whole society. Since whatever happened to the individual affected the whole corporate group, the intention was to limit chances of individuals acting on their own ways which could land them and their group into problems.

The belief was that as long as individuals lived together and followed modes of existence already established by their ancestors, individual and collective security was assured. The welfare of the whole society required that all its individuals conform to the established norms and standards of existence handed down to them by their ancestors without any deviation. The society, therefore, took the responsibility of moulding an individual right from childhood into conformity with the traditions and values of his society. The society, it appears, attached more importance on the corporate group than the individual. This was however a feature that was common with many traditional African societies.

In the Bukusu traditional society, physical birth was not enough. The child had to go through rites of incorporation so that it became fully integrated into the society. During their youth age, the youngsters, male or female, received a good deal of apprenticeship to the traditions and values of their society. When they were strong enough to carry out certain tasks, they could look

after cattle, carry out some domestic chores, assist their parents or kindred in simple agriculture tasks or join hunting expeditions.

At puberty, the boys were expected to go through the circumcision rite. Both boys and girls were expected to go through the marriage rite before being incorporated as full members of the Bukusu society.

During all these incorporation rites and throughout the individual's upbringing, he was subjected to a process of education which so closely tied up every aspect of life with the society's traditional beliefs and practices. The uncritical acceptance of these beliefs and practices was carefully made to appear as a matter of life and death for the individual and society. Critical questioning of these beliefs and practices were forestalled by attributing their origin to the remote and powerful ancestors and by endowing the latter with a sacredness which made all their utterances and wisdom unchallengeable and therefore absolute. What was wonderful, was made more wonderful, what was awful more awful and what was mysterious more mysterious.

The youths entered adulthood as undifferentiated individuals decisively beaten into line. The various social forces and the elaborate body of folkways sanctioned by supernatural beings moulded the youths to produce in them the typical attitudes and behaviour of the group. The corporate group personality was chiseled out of the raw material furnished by nature. The minds of the youths were manipulated

so much so that they willingly surrendered their self to the corporate group. Through the conformity of the child, the continuity of the corporate group was assured. The corporate group's natural inclination to preserve peace, comfort, and prosperity for itself in life and in the spirit world made pressure for conformity and perpetuation of established traditions strong. To accomplish this, the child must be beaten into group conformity.

How well one did or did not fit into one's corporate group could be attributed to the success or failure of the group in inculcating attitudes of devotion and submission during the first years of life.

A woman in the traditional society was brought up to be an obedient and hard working wife. She was brought up to consider men as leaders and obey them especially the husband. Obediency and hardwork were the chief virtues of a wife. In addition fertility was considered a necessary virtue for a wife. The more children, the more secure was a wife's position. In cases of sterility or failure of a couple to have children, only the female counter-part was blamed to be the cause. Men were rarely blamed for this.

A woman in the traditional society had no ownership status. She could only claim some sort of ownership of her husband's property and their children as long as their marriage lasted. In the event of divorce, she had no claim on the above property and even on her children.

The husband had exclusive sexual rights over his wives yet the wives had no similar rights. Men enjoyed superior statuses in the society. They had ownership rights over property and their children. They were to

a large extent excluded from domestic duties as these were solely left for the women.

What is worthy noting here is the fact that a woman, unlike her male counterpart was very much marginalised in the traditional society. Given her duties and status in this society, a woman seldom took part in public life. But if a traditional Bukusu woman can be regarded as having been marginalised in this respect from the modern point of view, she did not regard herself as being at a disadvantage and did not envy her menfolk for what this study here describes as superior status. She did not desire things to be other than they were.

This was the result of her upbringing which made her into accepting the social framework without questions. The men, likewise, saw nothing wrong with this social structure for any otherwise to them, could lead to social problems. The use of early education by society to manipulate the minds of its members and corrupt their conscience so that they willingly embrace what they would otherwise not, must be seen to be a form of authoritarianism.

To attain a recognised social status in the Bukusu traditional society, an individual was expected to pass through all rites of passage especially circumcision and marriage. Matrimony and parenthood were necessary steps to acquiring social status. In addition, age was a major determinant of an individual's social status. The older a person became, the wider became the group of people related to him by blood and marriage and the wider his sphere of influence. The authority of seniors or elders over their juniors (the youths) pervaded all social relations. The youths

were expected to respect and revere their elders and were not supposed to question their utterances and wisdom.

This social framework made Kwasi Wiredu to comment that:

our traditional society was deeply authoritarian. Our social arrangements were shot through and through with the principle of unquestioning obedience to superiors which often meant elders. Hardly any premium was placed on curiosity in those of tender age, or independence of thought in those of more considerable years.³

The relationship between the living community and their ancestors was likewise authoritarian. No living person, young or old could question the wisdom of their ancestors. The living were all under the control of their ancestors who required them to live in accordance with the already established ways.

It was believed that the stability and existence of the living community depended on its adherence to the old folk ways. The elders with the help of the ancestors dogged the living to enforce this important order that was vital for their existence.

The corporate group was therefore duty-bound to prevail upon the individual to revere its traditional ways. In the event of any deviation, ancestral wrath was sure to follow, directed at the individual and which could also affect the whole corporate group. To avoid such eventualities, it was upon the corporate group to make its members conform to its traditional ways. The individual had to act knowing that his actions

would also affect the corporate group; that when, as said earlier, he suffers or enjoys, the whole group suffers or enjoys with him too.

Bukusu society exhibited a lot of collectivity and conservatism. Primacy was accorded to the corporate group rather than the individual. The group was supreme and overriding over the individual. Individual interests and desires were subordinate to those of the group. The welfare of the whole was superior to that of the parts.

The aim of the corporate group was therefore the complete integration of the self with it. Individual personality had to be submerged into collective personality. Individuals were compelled into strict communism, to dependence upon one another, and a fusion which reduced everyone to the same level or into uniformity. Collectivity rather than variability was encouraged with religious backings. The individual had to abandon his own self interests and desires in favour of the collective ones. He had to abide by his group's traditions, public opinion and decrees.

The individual surrenders his self to the group, to its goals, values and standards. The self, the 'I' surrenders to the group, the 'we'. Fromm talks of this surrender which he says leads to the loss of the individual self. He writes that:

the individual ceases to be himself, he adopts entirely the kind of personality offered to him by cultural patterns, and he therefore

becomes exactly as all others are and as they expect him to be. The discrepancy between 'I' and the world disappears..... This mechanism can be compared with the protective colouring some animals assume. They look so similar to their surroundings that they are hardly distinguished from them. The person who gives up his individual self and becomes an automaton, identical with millions of other automatons around him, need not feel alone and anxious any more. But the price he pays, however is high: it is the loss of his self.⁴

This surrender is a result of the individual's inability and lack of confidence in promoting his own independent interests and desires against the powerful social and supernatural sanctions. The only escape is for the individual to surrender to the group which according to Fromm, offers a him a sense of security and comfort.

The individual is made to believe that he cannot survive without the others and that he cannot challenge the customs of his corporate group. He is carefully made to feel unable and incapable of existing independent of the corporate group.

It should be emphasized that this emphasis on the community was a common phenomenon not only to the Fokusu society but to many other African traditional societies. Many writers on African traditional societies such as L.S. Senghor, J.S. Mbiti, Kwame Gyekye, J. Nyerere, Sekou Toure and many others have recognised this phenomenon as having been common to most traditional African societies. L.S. Senghor stresses this point when he writes:

Negro-African society put more stress on the group than on the individual, more on solidarity than on the activity

and needs of the individual, more on the communion of persons than on their autonomy. Ours is a community society.⁵

And J.M. Nyasani perhaps marvelled by this African Communalism remarks that "African sociality is unique and transcendental."⁶ That this phenomenon goes beyond the mere fact that man by nature is a social animal. What then makes this phenomenon so unique in Africa? This phenomenon must have grown out of the hostile environment in which the Africans have lived. Africa was fraught with all kinds of dangers and enemies both from within and without. There were marauding wild animals, floods and earthquakes, inter-tribal wars and diseases which gradually gave birth to the attitude of collective existence, of solidarity, togetherness, brotherhood and extended family structures resulting in the diminishing of the status of the individual person. People grouped together in order to combat these problems on a united front. This emphasis on collectivity rather than individuality gradually became part of the African social structure and took some religious dimensions. successive generations attributed this phenomenon to the ancestors thus cementing it among the African societies. It was seen as the work of the ancestors which no individual could go against. This religious dimension gave it its uniqueness as compared to other societies in other parts of the world.

When slave trade and more recently colonialism came, they further subjected Africans to sufferings and this helped to cement their sense of communalism. The effect of this developments on individuality was great.

5.1 THE SURRENDER TO THE GROUP AND THE QUESTION OF INDIVIDUALITY

The individual's self surrender to the 'we' or the group implies that his endeavours and even his private initiative to a larger extent are predetermined and must in any case, conform to the traditions and customs of the corporate group. The individual has to measure his activities against the conscience of the group. The individual loses his autonomy as a distinct self very different from the others. He feels and thinks that he can develop his potential and originality only in and by society.

The Bukusu traditional society emphasized uniformity amongst its members and this penetrated into the most minute details of individual life. The injustice that this did to personal strivings and aspirations was great. The individual could not operate beyond the limits of his corporate group. The Bukusu traditional communality worked against the cultivation of individuality in the society. Communal or collective structures are known to work against individual liberty.

Adolphe Cureau, writing on a traditional African community stated that:

the village as an extension of the family, compels its citizens to strict communism, to dependence upon one another, and a fusion which reduces everyone to the same level and submerges personality and originality.⁷

On the same point F.G. Burke argues that such communism "tend to submerge the individual personality within the collectivity."⁸

The above views supports the contention that traditional African emphasis on the community at the expense of individuals diminished individual status, initiative, identity and originality. Such communality is therefore in several ways opposed to individual liberty.

It might be argued that the Bukusu traditional society did not deprive the individual of his freedom because the 'individual' did not yet exist. That the individual tended to disappear in the life of the group and did not exist as a distinct and independent entity capable of being granted individual liberty.

An inescapable fact of the contemporary world is the fact that individual liberty or rather the cultivation of individuality is an important factor in the development of individuals and their societies.

Kwame Gyekye argues that African communality was not opposed to individuality but rather enhanced it. He bases his argument on the fact that the well-being of the group depended on the unique qualities of its individual members and that the group could not therefore work against such essential qualities for its survival.⁹ But Gyekye either does not understand the extent of traditional African communality as sanctioned by customs and the supernatural or he is merely a victim of the historical dilemma in which many African scholars face in their endeavour to reconstruct the negated past, to counteract the western discourses which pictures Africa at the bottom, and the west at the top. In such endeavours objectivity is bound to be abandoned for the sake of creating a better picture of the past.

Nyasani is more objective when he states that:

Notwithstanding the many positive aspects of the sociality of the Africans that is firmly founded on the positive submersion of the 'I' in the 'we', there could be some negative implications which relate to the denial of certain existential aspects of life generally regarded as cardinal in the western ontology. I am thinking, for example, of the focus on the individual by the existentialist philosophies of the west and the moral responsibilities ensuing from free human actions.¹⁰

Ideas of social rights and liberties were actually non-existent in traditional Africa but this is no longer the case now. These ideas are late comers in Africa from foreign fields but their impeccable influence and importance in the world makes it regrettable that they came late to Africa.

Whichever the way it is argued, collectivity as exhibited by the Bukusu traditional society was by any means extreme and wild, and this was bound to be destructive to individuality . Extreme collectivity does not eliminate the existence of individuals but it rather kills individuality.

Human nature has a wide range of differences in individual capacities and potentialities. A child comes into existence with the potentiality for certain abilities, skills or integral pursuits. It is only in a free society that these differences in individual talents become distinct and fully developed. It is only in a free social setting that individuals have the freedom of developing and exploiting the potentials and capacities to the fullest extent.

In a social setting where emphasis is put on collectivity, uniformity and conservatism in complete disregard of individual uniqueness human talents are screwed up and shrivelled. Individuals are denied the right of developing and exploiting their talents to the fullest extent possible. They are denied the human desire of wanting to be as different from the other as possible. They are instead goaded into collectivity and uniformity in disregard of the idea of positive freedom as the full affirmation of the uniqueness of the individual.

What liberty as a principle considers as of the greatest importance is the individual not the corporate group. Each human soul is essentially unique and in its pursuit of happiness and the seeking for salvation, it must tread its own path and find its own solutions to the problems that present themselves. Different individuals will require different conditions for the attainment of their happiness. To force them into selected conditions only is to deprive them of their unique conditions necessary for their happiness.

Conformity, collectivity and uniformity blocks man's full human development. It stands in the way of the development of his reason and his critical capacities. It makes him realise himself only through the group, it makes him abandon his self as a unique individual different from the other. The development of an individual as a free, self-determining and productive person is limited.

Where, as the case of Bukusu society, society upholds collectivity conformity and uniformity, individual liberty is lacking. A society where the individual is submerged by the group, where individuality

is subordinate to collectivity, individuals are not free. The problem that was experienced in the Bukusu traditional society was the subordination of the individual to the corporate groups.

In the absence of liberty, a static order of society would be the necessary consequence, since without individual freedom, society cannot be progressive. Individuals grow less and less full of vigour, and more and more passively submissive to conditions imposed on them. A society composed of such individuals cannot be progressive or add much to the world's stock of mental and spiritual possessions. The emphasis on collectivity can be a curse and a barrier to progress, social and individual. It limits an individual's opportunities for the fullest expression of his unique interests and endowments. It is for these reasons that Mahatma Ghadhi decries collectivity. He writes:

Never has the individual been so completely delivered up to a blind collectivity, and never have men been less capable, not only of subordinating their actions to their thoughts, but even of thinking... So obvious are the impotence and distress of all men in the face of the social machine, which has become a machine for breaking hearts and crushing spirits...¹¹

The emphasis of collectivity and conformity by the Bukusu traditional society drowned individuality. Any marks of individual variability were subdued by the corporate group. The individual lost the right to independent thought, action and expression. He lost his freedom

to two powerful forces, the corporate group and the supernatural beings. The individual was to shun what lay in the future, the unknown. He had to live in accordance with the already established ways. Under such conditions an individual loses the necessary conditions to happiness, hope, enterprise and change.

Such social arrangements are bound to prevent an individual from using his mental powers to the full and consequently from making the greatest contribution that he is capable to himself and his community.

The Bukusu fastened themselves irretrievably to the customary ways of life and for long this inertia may have in one way or another prevailed against any further improvements in food getting, development of tools, and the accumulation of capital. This in turn may have led to a slow down in the social and economic growth of the Bukusu traditional society. Social and economic growth may have slowed down or even become fixed as little effort if any is expended in their elaboration or improvement.

The environment could have been of a nature that made for progress, called insistently for adjustment on pain of extinction, but the above conditions especially the need to live in accordance with past experience, as powerful as they were, may have led to a static society. Members of such a society preferred to avoid the wrath of the supernatural by clinging on old standards and values and avoiding changes. Consequently such individuals could lose the element of foresight.

A society that pushes its individuals into such conditions cannot progress. Individuals will have been made incapable of developing themselves

and consequently their society. If an individual is to make the best use of his knowledge, capacities and foresight, he should be subjected to a free environment where he pursues his businesses without coercion. As already pointed out, Mill argues that the development of all societies is usually as a result of the initiatives of individuals but not the masses, atleast at their original level. Every individual therefore need to be granted freedom as an inspiration to his self development and consequently the development of his society. Freedom is an indispensable condition for development. The development of any society requires more originality and diversity, and the freeing of the rich promise held out by the innate differences in ability and talent that lie hidden in the make up of the individuals.¹² Strict collectivity, conformity and uniformity as emphasised by the Bukusu traditional society only helps to drown such essential conditions.

It should be noted at this point that in any society, there are certain spheres in which, while it is a matter of indifference what people do, it is essential that they should all do the same thing. In matters where uniformity is essential, society has a right to exact uniform behaviour from its members. Society or the corporate group may justifiably enforce that minimum of uniform behaviour on the part of all without which it is not possible for the good life to be lived by any.

5.2 COLLECTIVITY AND CONFORMITY AS A RELIGIOUS COMMANDMENT

Religion, as it has already become evident, was a very important authority in the Bukusu traditional society and therefore played a major

role in shaping the social set up of this society. Every member of this society was religious and religion, as pointed out, pervaded every aspect of an individual's life. The existence of every individual and the whole society was believed to have depended on the observance of religious teachings.

It has already been seen that the beliefs in ancestors was an important feature in the Bukusu religion. The ancestors who enjoyed authority over the living were the guardians of the living community and its religion. They guarded and demanded for the living's conformity and preservation of the established customs and traditions. The living were expected to live in strict accordance with these traditions and customs without any deviation. The ideal lay in the glorious past and the ancestors were seen to be determined on seeing the living follow past experience and modes of existence. The standards and wisdom of the ancestors represented the glorious past which had to be adhered to. Things had to remain as they were during the days of their ancestors. Change was a sin which was to be discouraged.

In addition, taboos and curses whose efficacy depended on supernatural forces, were used in guiding and directing individuals to adhere to traditional norms and values. Any individual's desire for change was blocked by the threat of curses and taboos. The belief in witchcraft and sorcery to an extent also forced individuals into conformity with the norms and values of their society. Witchcraft and sorcery could be easily used against people who deviated very

noticeably from their social groups. Individuals were forced to be as uniform as possible with others so as to escape the attention of witches and sorcerers.

The supernatural beings and forces were therefore used by the society as the creators of the social norms and values. The individual was made to believe that his existence and survival depended on his society and the supernatural beings. That it depended on his reverence and preservation of his society's traditions. His existence and survival was convincingly tied to his society's religion. He was made to feel dependent on his group and the supernatural beings. The centre of life was shifted from the self to the group and its religion.

The question then was no longer how one could live himself but how he could manipulate the supernatural world in order not to lose it but to make it do what he wanted. The desire for its goodwill was expressed in the individual's conformity with his group or society and in his self surrender to the group.

Rules of conduct, however hard or oppressive were therefore unquestioningly obeyed. Individuals made themselves into models of traditional abiding persons who slavishly submitted to all norms and values however oppressive. Only then, they believed, could the individual be protected and helped by the supernatural being and even his society.

Conformity and collectivity were a religious calling in that religious beliefs in ancestors, taboos, curses, witchcraft and sorcery in many ways

J.T. O'Hara, Western Religions and Philosophy, Harvvard, Boston, 1953, p. 108.

S.A. Nwabueze, African Philosophy, Ibadan, 1964, p. 141.

advocated for and fostered conformity and social collectivity.

Being a religious calling, individuals had to adhere to it.

In fact without the Bukusu traditional religion, there is no reason to suppose that this society could have upheld the idea of collectivity and conformity to the extent it did. East African Studies, London, Vol. 8(1), 1965, pp. 92-94.

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CHAPTER SIX

CONCLUSION

In this study, it has been seen that liberty is a state of being free from external constraints so that one can determine his own destiny as directed by his own conscience as long as he does not interfere with the equal liberty of others. It has, however, been argued that this liberty must be restrained for the sake of social life since absolute liberty would lead to no liberty at all. Some limitations on an individual's liberty is therefore necessary but the aim of every society or institution should be to grant the individual maximum freedom possible. It has also been seen that freedom is necessary for the fullest development of an individual's talents and potentialities and, consequently, for the progress of his society. Every society, therefore, has the obligation of evolving institutions that enhance individual liberty.

In the examination of the Bukusu traditional society, it has been seen that most of its religious beliefs and practices did not work towards the enhancement of liberty but rather worked against individual liberty. The rites of passage were carefully used to incorporate individuals into their society. They tied individuals tightly to their society, its traditions and customs. Individuals were made to feel as being part and parcel of their society and were instilled with a feeling of dependence on their society and incapability of independent existence.

The rites of passage especially circumcision and marriage as seen in chapter three were over emphasized and given too much importance in complete disregard of any individual interest regarding these practices.

The practice of these rites was compulsory and were littered with so many authoritarian incidences some of which were too brutal and barbaric towards the individual. In the practice of these rites of passage, individual liberty was completely disregarded.

Other traditional beliefs and practices examined in chapter four such as the ancestor cult, taboos, curses, the practice of sacrifices, witchcraft and sorcery were also seen to have been coercive towards the individual as they depended on supernatural threats and force which individuals could not challenge. Like the rites of passage, these beliefs and practices were suffused with authoritarianism and as such were oppressive to the individual. Religion was so powerful a social factor, that it enjoyed an overwhelming influence and authority over any human activity. The Bukusu traditional society was, as such, observed to have been largely under the control of the supernatural world. The supernatural beings especially the ancestors were invested with a lot of power and played a leading role in the society. The standards of good or evil were derived from them other than being based on the practical needs of the living and the changing circumstances. The elders were also invested with unchallengeable authority while the youths were blocked from participating or playing any leadership role in most important social events and activities.

It was also observed in chapter five that the Bukusu traditional society was highly collective and conservative. A lot of emphasis was put on collectivity, conservatism and uniformity in complete disregard of individuality. This society demanded that individual interests be subordinate to collective interests and that individuals conform to the old ways without dissent.

This practice killed the cultivation of individuality which is a basic requirement of the principle of liberty. This communality, as the study has shown, was a common feature among most traditional African societies which seem to imply that the question of individuality in these societies was very much disregarded.

Whatever else this maybe, it is certainly a restriction and violation of the principle of liberty. The individual had to live in strict accordance with the already established modes of existence and the demands of his society which were believed to be sanctioned by the supernatural beings. He had to observe all the demands and rules of all the religious beliefs and practices, all of which were sanctioned by the supernatural beings. Against these beings, the individual was powerless and helpless and had therefore no other alternative but to conform to the demands of his society.

It is this information about the Bukusu traditional society that warrants the conclusion that this society was authoritarian. As the study has shown, a society is authoritarian if its social institutions or systems are a hindrance to individual liberty. In the Bukusu traditional society, religious beliefs and practices examined in this study, were in one way or another seen to have been authoritarian. The role of the supernatural world in the society and the communality pursued, very much diminished signs of liberty in this society.

The fact that the Bukusu traditional society was authoritarian is no doubt an objective observation made in an era very different from that of the traditional one. It cannot clearly be established whether or not such an

observation could have been possible from the traditional milieu itself given the social and physical conditions of the time.

It should however be noted that the collective nature of the Bukusu : traditional society and its religious beliefs and practices which this study has shown to have been authoritarian or anathema to individual liberty had well founded explanations. These mode of existence, beliefs and practices as seen in chapter five were a matter of life and death which the society could not do without.

Lack of scientific knowledge and the harsh environment experienced by the members of this society such as tribal wars and cattle rustling, marauding wild animals, epidemics and other natural misfortunes created a sense of togetherness or rather collectivity among the members of the society. Their helplessness in the face of most misfortunes and calamities gave rise to some religious beliefs and practices such as the ancestor cult to which the helpless individual could turn for help and protection. These beliefs and practices emphasized cohesion . conservatism and uniformity among the members of the society. This helped to enhance unity and cohesion in the society at a time when there was no other viable direct institutions to do so and when this was the only better shield against the many misfortunes and calamities that faced the society.

That the collective nature of the Bukusu traditional society and its religious beliefs and practices were oppressive to the individual is, courtesy of this study, doubtless. The society however had no other better

mobile and no longer rely on their corporate groups for most of their needs. They have found new companions in other parts of the country. The communal cells have therefore been broken and individuals are no longer strictly tied to their community.

The advent of modern education and the decline of the traditional religion has led to the erosion of the influence of elders on the young members of the society. They are no longer seen to be sole custodians of knowledge and wisdom. Longevity is no longer the only way to the acquisition of knowledge and wisdom.

The influence of christianity has also led to the rapid decline of the Bukusu traditional religion. Traditional religious beliefs and practices such as curses, taboos, witchcraft, ancestor cult and the rites of passage have greatly been affected. Many people now go unmarried without much pressure while many more take their children to hospitals for circumcision in deviance of the traditional customs. In brief, the influence of the old manners have weakened and with it their authoritarianism. It is in this changed circumstances that it can now be felt that the Bukusu traditional society was authoritarian. It cannot be assumed here that the members of this traditional society could have had such feelings about their society.

The growth of science and other fields of knowledge has in many ways enabled man to gain more freedom. The additional information about life and the world has exposed man to more and better alternatives of life than what he was used to. Freedom increases with the increase in alternative ways of life. This had led to a considerable split with a past of collectivity, homogeneity, of authoritarianism and claustrophobia brought on by the government of the supernatural world.

alternatives or means of social control at that time of the historical development. In the absence of elaborate political system and direct law enforcement institutions and agencies, it is doubtful that without the use of what is now seen to have been the authoritarian means of social control, this society could have been as cohesive as it was. The use of these authoritarian means of social control in most traditional African societies seem to have been an inevitable historical phase in their development. It was, it appears, necessary to sacrifice a greater part of individual liberty for the collective good, the survival of the whole society.

All said and done, the Bukusu traditional society was authoritarian and as such individual liberty was highly limited. This phenomenon was however not without some justifications however unconvincing some may appear now.

It is important to note here that the traditional African communality led to a world-view which put a greater emphasis on the community than the individual. The community was prior and supreme to the individual. The Western tradition accords supremacy or primacy to the individual in his interactions with the community. The individual in this tradition enjoys a distinct status of autonomy from the community. The African tradition on the other hand, focused on the community and seem to have embraced the idea that each individual exists for the greater glory of the society unlike the Western view that the society and its institutions exist, and should be varied and organized for the greater development of each individuals' potentialities.

As such the question of individual liberty or individuality was non-existent in the African world view. This study, it is important to note, used the Western world view as a yardstick in computing the position of the individual in the Bukusu traditional society. The fact, therefore, that this society was authoritarian is actually a conclusion based on the use of Western existentialism. As industry moves into Africa and cities grow in size however, we are experiencing the breakdown of the traditional African communality and an increase of individualism.

The influence of western ideas and particularly science and its consequences on the lives of the people has had far reaching effects on the Bukusu people. It has led to a diminished effectiveness of the supernatural world and consequently the weakening of the ancestors. Supernatural intervention in the lives of the people has been reduced to a minimum and the traditional religion as a whole has been pushed into greater remoteness.

The Bukusu traditional religion has therefore lost its hold on a significant section of the Bukusu people. People are now highly mobile and no longer rely on their corporate groups for most of their needs. They have found new companions in other parts of the country. The communal cells have therefore been broken and individuals are no longer strictly tied to their community.

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Since most traditional African societies had several common beliefs and practices, more research may perhaps be needed to show whether these societies, like the Bukusu traditional society, were authoritarian, and, therefore how this affected the liberty of their members. Such researches would no doubt lead to a clear understanding of the question of individual liberty in traditional Africa and whether or not this has some reflections in Africa today.

It is perhaps possible that the repressive nature of most post-independent African governments is in one way or another a reflection of the traditional African situation. The resort to one party systems and massive repression to maintain a semblance of political stability has been a common feature among most African governments. There is also a tendency among African leaders to serve sectarian and ethnic interests rather than national ones. It is possible that all these have their roots in the traditional African societies. Most present African leaders belong to a generation whose upbringing was highly influenced by traditional values and social systems. They were brought up in an environment that was highly collective, conservative and generally therefore authoritarian as was the case in the Bukusu traditional society, where any signs of opposition or criticism against established modes of existence and norms was seen as a threat to social unity and was therefore highly prohibited. Social cohesion was paramount to any individual interests. Traditional African societies were also characterized by lineage and tribal leanings.

It is in such environment that the current generation of African leaders were brought up. It is important to note that an individual's upbringing is bound to influence his personality throughout his life. In this line of thought, it is tempting to state that the present African leaders, brought up in traditional African environment, are unconsciously forced to borrow traditional systems of social control and apply them in their governments. This may explain why in their search for social and political stability, they are totally opposed to opposition and even criticism and are always ready to resort to very repressive and barbaric means for the sake of this stability.

The problem of political patronage may be partly a product of traditional African communality and ethnic leanings where an individual could only feel secure in the midst of his own people. The problem of tribalism in the African political arena can perhaps be partly understood in this line.

Another important issue that this study has thrown light on is the possibility of some connections between Africa's underdevelopment especially in the traditional era and the authoritarian nature of most traditional African societies. Most of these societies, as already stated were highly conservative and collective and definitely this is bound to affect development. As was argued in chapter two, the development of societies is usually as a result of initiatives of single individuals atleast at the initial stages but not groups of individuals. Collectivity and conservation as was pursued in

traditional African societies, limited the individuals' exploitation of their talents and potentials and therefore initiatives. Individuals were denied the freedom of venturing into new modes of existence and experimentation. In such a social set up, the growth of scientific knowledge is limited. Conservatism among traditional African societies was the root cause of their resistance to the introduction of western education. Such extreme conservatism is likely to deny a society access to better ways to development.

More research of this nature on traditional African societies will however be required to establish the truth of the issues raised above. And more important still, such research may be useful in helping to identify anachronistic beliefs and practices which continue to impede the cultivation of individual liberty in Africa. Most traditional beliefs and practices, as this study has shown, were suffused with authoritarianism and their continued existence in whichever forms may obstruct the cultivation of individuality and development in Africa today.

There are, however, some traditional beliefs and practices which can still be valuable to modern African societies. In fact, the disappearance of such beliefs and practices especially among the youths has led to an increase in immorality and crimes in the country. In the Bukusu traditional society, for example, sexual promiscuity among the youths was checked by the prohibition of pre-marital sex which was sanctioned by the supernatural beings.

This value has however lost hold and consequently sexual promiscuity among the youths has increased and with it sexually transmitted diseases.

The existence of most of these traditional values depended on some form of force especially on supernatural threats. The use of this form of sanctions can no longer hold and consequently the preservation of these values has been elusive. Perhaps it would be important for social scientists to try and show how such values can be preserved without their traditional sanctions.

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TRANS NZOIA

MT. ELGON

UGANDA

BUSIA

Kapsokwony

Kimilili

KIMILILI

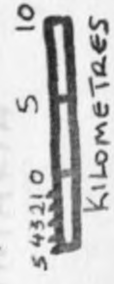
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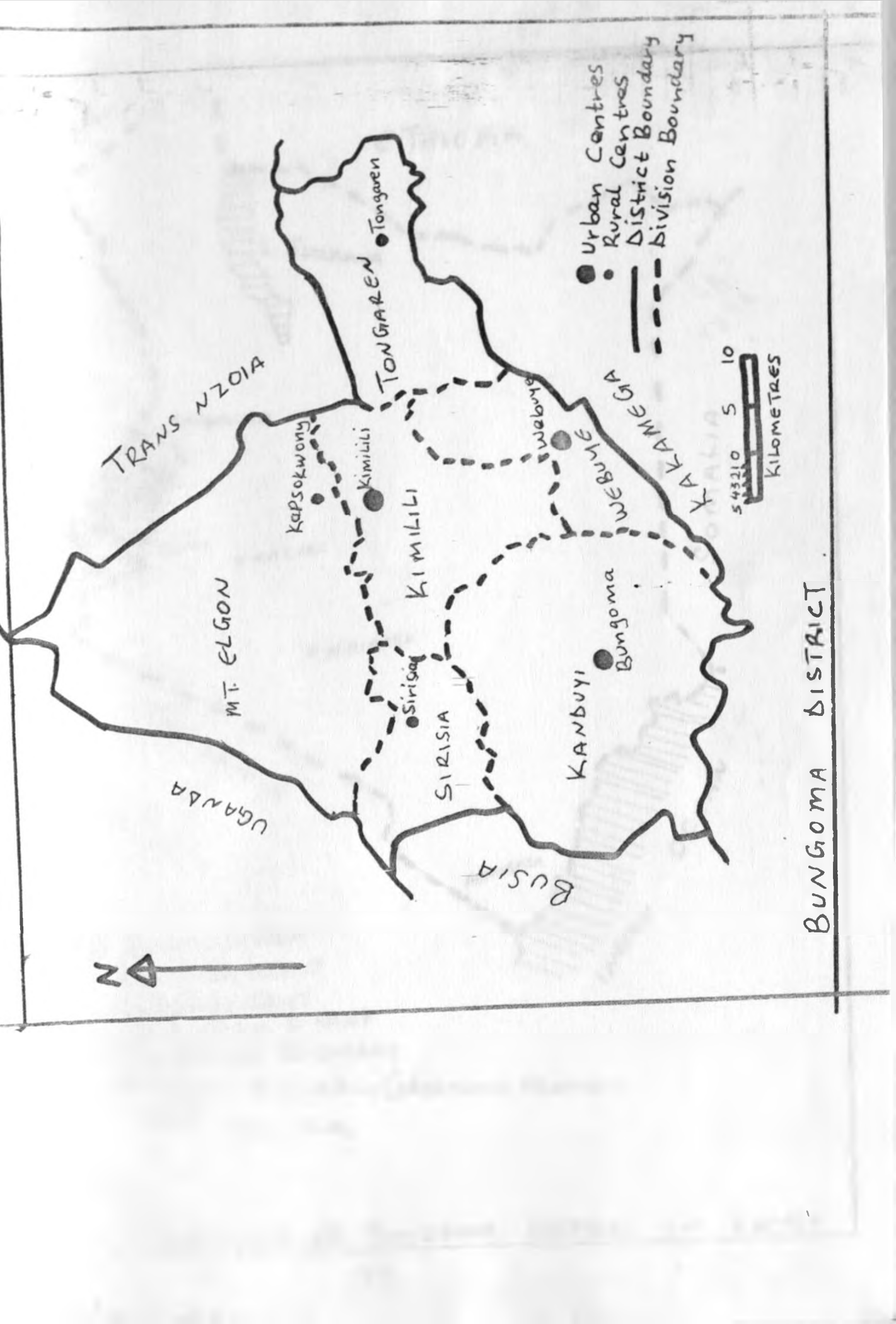
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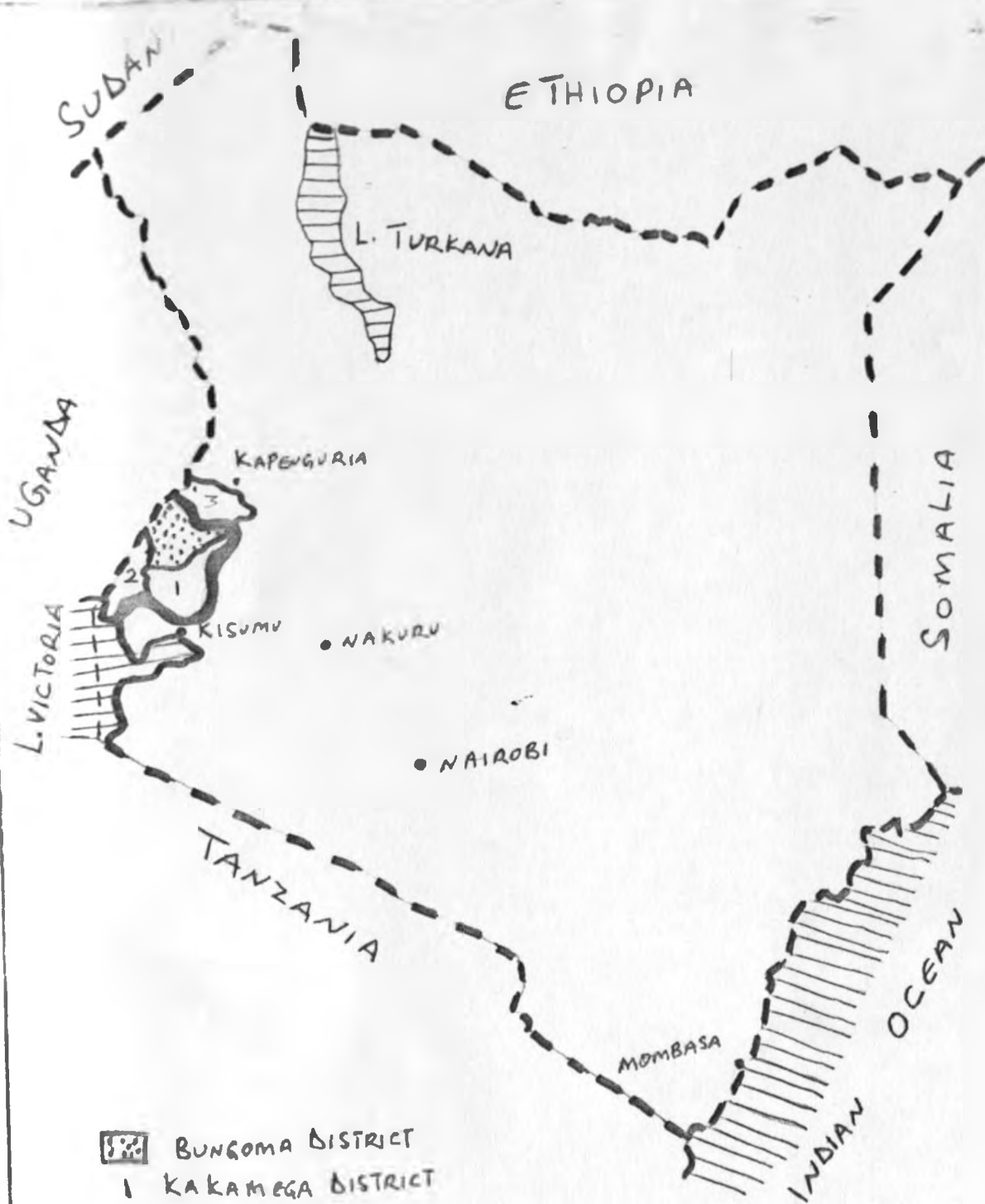
Bungoma


- Urban Centres
- Rural Centres
- District Boundary
- - - Division Boundary






BUNGOMA DISTRICT





-  BUNGOMA DISTRICT
- 1 KAKAMEGA DISTRICT
- 2 BUSIA DISTRICT
- 3 TRANS NZOIA DISTRICT

-  INTERNATIONAL BOUNDARY
-  PROVINCIAL BOUNDARY (WESTERN PROVINCE)
-  DISTRICT BOUNDARY

LOCATION OF BUNGOMA DISTRICT IN KENYA

**"THE PERFORMANCE OF THE TOURISM
INDUSTRY IN KENYA: A PRIORITISATION OF
DETERMINING FACTORS"**

BY

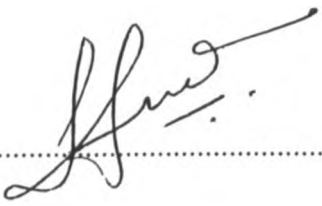
WAGOKI, A. JUMA

**A MANAGEMENT RESEARCH PROJECT SUBMITTED IN
PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE
DEGREE OF MASTER OF BUSINESS AND ADMINISTRATION
(MBA), FACULTY OF COMMERCE, UNIVERSITY OF
NAIROBI.**

JULY, 1998.

DECLARATION

This Management project is my original work and has not been presented for a degree in any other university.

SIGNED:  DATE: 17/8/98

WAGOKI, A. JUMA.

This project has been submitted for examination with my approval as university supervisor.

SIGNED:  DATE: 17/8/98.

J. MAALU
Lecturer,
Department of Business Administration.

DEDICATION

*To my late brother Jackson Wambugu, for leaving a mission
unaccomplished when you succumbed to death while an
M.A. student at the University of Nairobi in 1978.*

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LIST OF ABBREVIATIONS

ATH	- African Tours and Hotels
GDP	- Gross Domestic Product
I.E.A.	- Institute of Economic Affairs
I.L.O	- International Labour Organisation
KAHC	- Kenya Association of Hotel Keepers & Caterers
KATA	- Kenya Association of Tour Operators.
MCTA	- Mombasa and Coast Tourist Association
KICC	- Kenyatta International Conference Centre
MP&ND	- Ministry of Planning and National Development
KRC	- Kenya Railways Corporation
KTB	- Kenya Tourist Board
K.T.D.C	- Kenya Tourism Development Corporation
MTW	- Ministry of Tourism and Wildlife
KWS	- Kenya Wildlife Service
SWOT	- Strengths, Weaknesses, Opportunities and Threats

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PROLOGUE

The Tourism Self-destruct Syndrome

1. A remote and exotic spot offers peaceful rest and relaxation and provides an escape for the rich, who live in isolation from the resident population.
2. Tourism promotion attracts persons of middle income, who come as much for the rest and relaxation as to imitate the rich. More and more hotel accommodation and tourist facilities are built to attract and accommodate more and more tourists.
3. This transforms the original character of the place from an "escape paradise" to a series of conurbations, with several consequences:-

The local residents become tourism employees and earn more than ever before

The rich tourists move on elsewhere

The growth in the tourist population makes interaction between tourist and resident population inevitable, leading to a variety of social consequences

Increased tourist accommodation capacity leads to an excess of supply over demand and a deterioration in product and price. The country resorts to mass tourism, attracting people of lower standards of social behaviour and economic power. This leads to the social and environmental degradation of the tourist destination.

As the place sinks under the weight of social friction and solid waste, tourists exit, leaving behind derelict tourism facilities, littered beaches and countryside, and a resident population that cannot return to its old way of life.

Source: Sober (1988)

ABSTRACT

The tourism industry is a vital artery of Kenya's economic complexion with incredible potential. However, the industry has been performing poorly especially in the 1990s. The objective of this research was to establish a priority list which has previously lacked making the tourism industry head for a slump. This was achieved by assessing the type, severity, prevalence and extent of the impact of the various determining factors such as security, marketing, infrastructure, government moratorium / incentives and taxation among others. Six categories of respondents were interviewed; which included hotel managers, tourists, beach operators, tour operators, MTW and KWS. A factor analysis model was used to develop the priority list.

The research found that security, infrastructure, marketing and government moratorium / incentives should be prioritised in that order. Other findings revealed that the poor performance leading to the relative decline of the tourism industry was inevitable since there had been signals to that effect over the years. The findings therefore form a paradigm in shaping tourism policy in Kenya for revival and expansion of this important sector of the economy.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

1.1.1 The importance of tourism

“ Like a modern midas, tourism has transformed much of the world’s natural beauty into pure gold. In the process, the tourism industry may have planted the seeds of its own destruction. For the suspicion is growing, ever so slowly, that the more tourism succeeds, the more it cannibalizes the very basis of its own existence - the wilderness, the unspoiled landscapes, the quaint villages, the unique cultures that drew visitors in the first place,”
(Critterndon, 1975).

Tourism has transformed some of East Africa’s natural beauty into gold, especially here in Kenya. Tourism generates or creates employment. For example, the total number of employees directly or indirectly employed in the tourism industry of Kenya in 1987 was estimated to be more than 100,000 (ILO 1987) , which was a quarter of all private sector employment outside agriculture and forestry. Indirect effects through backward and forward linkages are also substantial in construction, transport and communications as well as financial and other business services. Tourism - led demand has stimulated rapid growth in service and other activities including vehicle hire companies, curio shops and restaurants as well as food and drinks consumed by tourists (KWS, 1990).

The industry generates the much needed foreign exchange into the economy and present a challenge to local industry to compete in providing the best commodities to world standards. According to Mitchell (1968), tourism attracts foreign investors in a country who bring with them both capital and technical know-how for the economic benefit of the

country as locally owned factors of production employed in tourism have minimal productivity in the absence of the industry. The industry heightens a peoples interests, promotes local culture and the general economic development is realized through the multiplier effect (Summary, 1987).

But it is also true that all that glitter is not gold. Uncontrolled and unregulated use of some wildlife areas is a source of long-standing concern about a variety of perceived or actual ecological and social impacts (Myers, 1972; Jewell, 1974; Muthee, 1992). However the widespread perception among industry players is that, the tourism resources that attract people from around the world to this country, are being overrun by a myriad of factors- poor infrastructure; roads, railways, power, water,; dozens of uncontrolled lodges, poor marketing, insecurity, beachboy menace and many others. This is the dross that is projecting a negative image about Kenya to the rest of the world.

1.1.2 Definition of terms.

Tourism: According to Nkari (1985), tourism denotes the temporary movement of people to destinations outside the places where they normally live and work, and their activities during their stay at these destinations. This seems a more acceptable definition since it encompasses both domestic and international tourists. Persons who give rise to the tourism industry are known as tourists and they consume tourist products, which differ by purpose of visit: holiday, business or on transit.

Multiplier effect. Tourism researchers often use the 'multipliers' to convince governments of the value of tourism development. The multiplier is a measure of extent to which a given level of tourism spending contributes to income or employment (Lindberg,

1992). Thus, the effect is widespread in providing for tourism services: from hotel and restaurant employees, government services, local tour operators, local construction companies and related activities (coral- blocks, sand, timber, poles), taxi-, matatu-, and lorry- drivers(transport), boat operators and their crews, fishermen and fish-sellers, curio-sellers, shell- collectors, beach boys, prostitutes, palm- leaf (makuti) roofing makers, wood cutters and wood- carvers to the rural men and women who cultivate, carry and sell vegetables or fruits.

Prioritisation : According to the Longman Dictionary of Contemporary English, Reprinted Ed. 1992, priority is the state or right of coming before others in position or time - something that needs attention, consideration or service, etc, before others. Hence, to prioritize is the act of giving (something) priority. In this study, the term prioritisation will be accorded the meaning of giving priority to the determining factors that influence tourism performance in the order of their importance as will be determined by the conduct of this research.

Determining factors: The success or failure of the tourism industry in Kenya is affected by several factors. These include, infrastructure - roads, power, water.....; security, marketing/ promotional factors, beachboys, diversification of tourist attractions, tax incentives to investors, entry restrictions, hospitality, training of service providers, general economic development, governance etc. Reference will be made to any of these, as the determining factors that affect performance of the said industry.

1.1.3 The Kenyan attractions

The East African climate and the myriad of attractions makes Kenya have a competitive advantage especially among other African countries. Kenya is a wonderful country with a magnificent tapestry of mountains, lakes, beaches in the 480 Km coastal strip and wildlife reserves which form the glorious physical background of the country. The people of Kenya make the country a cosmopolitan cocktail of religion and culture that makes a visit such a rewarding and memorable experience.

Kenya is a host to many international conferences and a commercial centre in the eastern region of Africa drawing visitors who combine business and leisure. The attractions are many and diversified and especially when laced with Kenya's rich cultural heritage and the friendly Kenyan people. Indeed the number of arrivals grew by 69.2 percent from 1964 to 1990 (Central Bureau of Statistics, 1996) while earnings from tourism dived from K£94 million in 1964 to K£533 million in 1990 . This is a clear manifestation of the growing popularity of Kenya as a long haul destination in Africa and a demonstration of the potentiality of the Kenyan market.

1.1.4 The Impact of Poor Performance on the Industry

Statistically, the years between 1964 and 1990, show an upsurge in the tourism industry in virtually all indicators that measure performance of the industry such as earnings, arrivals, visits to parks, number of international conferences etc. (MTW, Tourism statistics, 1997).

In the 1990s, infrastructural development has stagnated if not declined to near collapse. In fact failure to develop the necessary infrastructure has caused the tourism

industry and the Kenya government lose a lot of revenue (Kenya & Munai, 1992). Road and power networks have broken down while water supplies cannot sustain demand. Poor management capacity of infrastructure, lack of autonomy on the public sector institutions responsible, poor commercial vision, lack of accountability and poor resource utilization, all lead to high elements of inefficiency (Anyango, 1996) which has hurt the tourism industry . The security situation in Kenya has deteriorated to its lowest ebb, prompting very adverse publicity abroad with little counter promotional activities to revive the situation. Competition has also intensified especially from South Africa, Botswana, Tanzania and Uganda not to mention traditional competitors - Egypt, Morocco, Tunisia, the Seychelles among others.

On the other hand, controversy still reigns, over the management of the Kenyan beaches, while the beach boy menace still exists. There has not been a clear policy as far as marketing and management of the industry is concerned as neither the role of the private sector nor the government is clear. There is lack of policy for diversification of the tourism products, as the industry is still over reliant on wildlife tourism. According to Western, 1992, lack of market diversity in Kenya's nature tourist industry and a preoccupation with marketing big game safaris has blinded potential visitors to the diversity opportunities. There is also evidence that tourists feel crowded at some Kenyan sites. Wildlife Conservation International surveyed tourists' attitudes at the Maasai Mara National Reserve, and a sizeable proportion of visitors complained that there were too many tourists (Gakahu, 1992). Other observers have also noted the need to control crowding to maintain the tourism experience and reduce ecological damage (Dieke, 1991), say by improving infrastructure in other parks as a dispersal strategy.

But perhaps, it is the ethnic violence persistent in Kenya, that has broken the spine of the tourism industry and with infrastructure shot to pieces, tourism stakeholders are almost unanimous in their demand that “something! anything!” be done to salvage the sector from total collapse. They look towards the government to set pace for the salvage operation, however, there has been a lot of dismay at the lack of urgency with which the problem is being handled. Kenya is in the unenviable position of keeping a modest flow of visitors coming. The tourism industry is in dire straits with progressively declining earnings, reducing volumes of visitors and heavy discounting for many of the visitors. This is having a heavy toll on many of the players in the industry. One only has to look at the number of hotels that are up for sale, or have temporarily shut their doors. Retrenchment has happened everywhere while there has been drastic cutbacks in capital investments and refurbishment with the result that many of the ‘jewels’ in the Kenyan hotel crown are starting to wear out.

Tourism to Kenya is a vital artery of its economic complexion with incredible potential. In the absence of major mineral resources and bearing in mind that only one fifth of Kenya’s land is good for agriculture, the optimum use of the resources is essential. Should the tourism industry collapse, the effects will be spread to many other sectors. Vehicles and aircraft will be grounded, with loss of jobs to drivers, mechanics, pilots, attendants at filling stations and other businesses like restaurants, kiosks e.t.c. When many people and businesses lose earnings, and therefore have less purchasing power, the impact can be felt in the entire economy because of the multiplier effect (I.E.A. 1997).

Indeed, with the prospects for a significant upturn for the industry being slim, all businesses and individuals who supply hotels with electricity, electric and electronic goods, furniture, food, toiletries, kitchen equipment, fuel, water, stationery, construction materials

and many other commodities and services will lose their earnings. On the other hand, it should be remembered that Kenya's share of the tourism cake is extremely small. While the local industry measures the volume of visitors in hundreds of thousands, many others (like South Africa) do so in millions. Despite the various aspirations over the years to reach the 'magic' million mark, the goal has remained largely elusive.

There seems to be limited literature in this area of study, with most research directed towards some aspects of tourism such as ecotourism, wildlife and park management as well as wildlife species. As cited, Western (1992) was concerned with a lack of market diversity giving rise to the need to diversify Kenya's tourist attractions. Dieke (1991) and Gakahu (1992) did observe the issue of overcrowding in Kenya's parks, proposing a dispersal strategy which would take shape if infrastructure were improved. Anyango (1996) in his paper titled, "National Infrastructure - Impact on Business Development", noted among other things that poor resource utilization has hindered infrastructural development in Kenya. Nkari (1985) studied marketing of Kenya's tourist attractions proposing ways of improving marketing especially in the tourist originating countries abroad, while Gakuru (1993) found that the MTW does not fully embrace domestic tourism.

Time and again, there has been media reports over the deplorable state of the country's security including attacks, mugging, ethnic turmoil e.t.c. As evidenced by these studies, reports and many others, the concern has been that of mixed or gross interplay of all these factors which are crucial to the performance of the industry.

1.2 The Research Problem.

This study identifies several factors that determine the performance of the tourism industry. KWS 1990, highlights several areas of diversification of tourism activities. This seems to concur with Western (1992) over wildlife tourism to the extent of blinding visitors on market diversity of attractions. Reports both in the electronic and print media have been exploring the issue of violence and overall insecurity especially at the coast and in the Rift valley province. Violence (insecurity) undermines such an important sector of the national economy as tourism (The Weekly Review, Sep 19, 1997).

Weak institutional capacity and infrastructure in Kenya has brought about deficiencies in planning, implementing and supporting institutions and infrastructure. Infrastructure grows linearly with economic output (WorldBank,1992) grossly affecting economic development and in effect tourism. Activities of beach operators have also been a paradox and an imperative. Cases of beach harassment have been rampant.

The multiplier effect signifies an interaction between providers of tourism services and consumers of the product - tourists. This effect brings about general economic development (Summary 1987), hence government incentives and tax rebates are necessary to encourage tourism investors in order to check on the cost of the tourism products. Marketing and promotional activities seem to over occupy many players in the industry. KTB is to spend Ksh. 300 million (Weekly Review April 3, 1998) to market Kenya abroad, yet the product itself is not well preserved and indeed secure. With prioritisation such an amount would be used to develop or improve the tourism package other than marketing.

The scenario therefore has been a collective and gross treatment of all these and

many other factors, a fact that has made the industry head for a slump. Creating a Work Breakdown Structure (WBS) is necessary i.e. handling each task separately with planning by answering the question, what must be done? among many others. This can be achieved by a policy of prioritisation. Hence, this background gives rise to the need to critically analyse the performance of the industry and in essence the determining factors with a view to prioritise them. The study therefore, projects the parlous state of Kenya's tourism industry as a prime candidate for treatment - *that of prioritisation of the most significant factors that determine the direction and performance of the industry and for which if a priority is established, would see the sector back in track, both in the short and long-run, through strategic decisions that can be derived therefrom.*

1.3. Objective of the study

The tourism industry in Kenya not only needs revival but also expansion. This calls for effective organizing, resource mobilization, complex decision making, technical problem-solving, the political aspects of coordination, and institution building, or in identification, acquisition, and utilization of non-economic resources. To achieve the above therefore, the objective of this study is to prioritise the determining factors in the order of their extent of influence on the performance of the tourism industry.

1.4. Importance of the Study

The research to establish the most pressing factors that determine the performance of the tourism industry in Kenya, is occasioned by the fact that, there is no clear cut policy of

addressing issues that either promote or downplay tourism development in the country. In trying to establish a prioritisation of the factors that should be addressed in order of their influence, this study is important to all stakeholders in the tourism industry in pointing to the direction that the industry should take to enhance its growth now and in the future. In particular to;

- ◆ The government to shape tourism policy.
- ◆ Investors in the industry for sound and serious investments in the tourism sector with a long term perspective.
- ◆ Hotel management(s) to avoid very proactive measures, when a solution is handy and local, and to promote and enhance world standards.
- ◆ Tour operators to especially promote a diversity of attractions that Kenya can offer other than over-reliance on wildlife tourism.
- ◆ Tour organisations for sound management, and quest of pressing for obligatory conditions that make the industry thrive, other than being obsequious to a system.
- ◆ Tourists for the understanding of Kenya as a world class tourist destination.

1.5. Organisation of the Study.

The research project is organised in five chapters. Chapter I (the material presented so far) is the introduction which considers the background, statement of the problem, objectives and the importance of the study. Chapter II contains the literature review, a state of the art of the tourism industry in Kenya, including statistical performance and a critical analysis of the identified determining factors.

Chapter III deals with the aspects of research design, namely the population, sample,

data collection methods and instruments of analysis. Chapter IV is devoted to research findings and data analyses. The last Chapter (v) concludes with summaries, implications of research findings, limitations of the study and directions for further research.

CHAPTER TWO

LITERATURE REVIEW.

The chapter presents a chronological review of the performance of the tourism industry in Kenya. This is then followed by a review of some of the significant factors that affect and determine the performance of the industry.

2.1. TOURISM PERFORMANCE : 1964 - 1990

Major indicators of tourism performance in Kenya such as yearly earnings, visits to parks, museums, hotel bed occupancy, arrivals among others, portray a steady growth in the industry from 1964 to 1990. This growth was equivalent to 8 percent of Kenya's total value of commodity exports and grew to about 18 percent in 1981 and rose again to 43 percent in 1989 (Business International No.2 1991 : 51). Tourism statistics from MTW indicate that there was a steady increase in visitor arrivals in Kenya with 56, 400 visitors in 1964 to 814, 400 visitors in 1990. The main explanation generally attributed to the steady growth from independence to the 1980s, is possibly because of an absence of stiff competition.

However, positive signals of economic growth during this period, especially during the first and the second decades of independence contributed favourably to the tourism industry. During this period, there was rapid expansion of production (GDP growth) - averaging 7 per cent per year (I.E.A. 1994) - which generated resources that enabled the country make meaningful gains in the general welfare level of people. An increment of 387, 900 visitors from 1964 to 1972 was no mean achievement. Kenya's visitor arrivals by purpose of visit from 1964 to 1990 were increasing year in year out, with the numbers doubling from 1983 with 372,300 visitors to over 800,000 in 1990 (Central Bureau of

Statistics, 1991). Probably the challenges which a young nation made these advances, were no less formidable than those of today, but perhaps, Kenyans owe these gains to the pragmatic economic management and relative political and social stability that prevailed at the time.

(a) Tourism Earnings.

One of the prime indicators of tourism performance is the earnings derived from tourist related activities. Table 2.1 shows tourism earnings from 1985 to 1990.

Table 2.1. Tourism Earnings (1985-90)

YEAR	K£s Million	Ksh. Million	US. \$ Million
1985	196.65	3933	241
1986	247.95	4959	310
1987	292.05	5841	354
1988	249.30	6986	376
1989	432.05	8640	420
1990	533.00	10660	466

Source : Central Bureau of Statistics

During the period 1985 to 1990, there was an increment of earnings by 36.9 percent from K£s 196.65 million in 1985 to K£s 533 million in 1990. In comparison with tea and coffee, tourism contributed the highest percentage to total export from 15 percent in 1985 to 20.8 percent in 1990, as compared to tea 14.6 percent and coffee 17.6 percent in 1985 to tea 12.3 percent and coffee 7.2 percent in 1990.

Table 2.2: Comparison of Earnings from Coffee, Tea and Tourism (1985-90)

(K£sMillion)

YEAR	COFFEE	%	TEA	%	TOURISM	%	TOTAL EXPORT
1985	230.7	17.6	191.4	14.6	196.7	15.0	1311.8
1986	388.5	25.1	172.8	11.2	248.0	16.0	1546.7
1987	194.6	12.8	163.4	11.4	292.1	20.4	1430.4
1988	244.8	10.2	185.4	9.7	349.3	18.3	1682.7
1989	203.8	8.6	272.9	13.7	432.1	21.7	1990.0
1990	221.0	7.2	314.5	12.3	533.0	20.8	2558.8

Source : Central Bureau of Statistics.

The increment in the earnings can be attributed to the steady increase in the number of visitors over the period. During the period 1985-1990, especially, there was notable decline in the economy which resulted entirely from the institutional failures of the government as a manager to respond to the crisis and its modes of governance. The impact of this decline was not severe on tourism as security was checked, save for a few incidents that could not have been taken as a standard measure of general insecurity in the country. Infrastructure, which represents if not the engine, then the 'wheels' of any economic activity, and hence very important to tourism, was also expanding, though at a very insignificant rate, while political inclinations dictated its development policy.

(b) Visits to the parks.

During the years 1985 to 1990, total number of visitors to National parks and game reserves increased steadily from 986,700 visitors in 1985 to 1,518,500 visitors in 1990.

Table 2.3 : Total Number of Visitors to National Parks and Reserves (1985-1990)

(,000)

Year	1985	1986	1987	1988	1989	1990
Nairobi	110.6	91.6	99.8	125.5	155.2	152.8
Animal Orphanage	102.5	73.0	82.1	84.8	48.3	213.8
Amboseli	151.5	157.0	148.5	137.6	140.4	237.2
Tsavo West	96.8	82.9	80.6	85.4	96.8	78.6
Tsavo East	73.3	75.3	89.6	87.3	101.1	127.7
Aberdares	43.1	42.5	54.0	60.0	57.5	66.6
Buffalo Springs	46.1	41.4	45.4	64.0	70.4	28.1
Lake Nakuru	135.5	127.9	128.0	138.6	167.4	174.2
Maasai Mara	110.7	94.8	96.0	118.8	196.2	180.5
Malindi Marine	25.4	36.1	38.6	40.1	40.7	35.6
Lake Bogoria	23.8	25.7	31.2	32.8	46.2	53.8
Meru	19.0	20.4	26.8	23.7	17.4	11.1
Shimba Hills	13.3	10.9	13.4	16.7	21.5	60.0
Mt Kenya	13.2	16.6	19.2	17.1	13.3	18.7
Samburu	6.1	5.1	4.3	3.6	4.0	26.6
Kisite/Mpunguni	6.4	122.0	11.0	17.9	18.2	27.3
Others	9.8	10.8	10.3	9.4	10.2	11.4
Total	987.1	1034.0	978.8	1063.3	1204.8	1504.0

Source: Central Bureau of Statistics.

However, although Kenya's wildlife remains the most important attraction to tourists, over the period, the industry was sitting on a 'timebomb'. That is, there was too much emphasis on wildlife tourism - concentration of tourist activities around wildlife and

especially the big five: The lion, Leopard, Elephant, Rhino and Buffalo. The explosion of the timebomb has been witnessed from stiff competition especially from 'virgin attractions' in South Africa, after the country was accommodated into the international community in the 1990s, giving rise to the need for the tourism industry to shift its emphasis to eco-tourism (away from the traditional attractions) and sell a diversity of other tour packages.

According to KWS, in "A policy Framework and Development Program: 1991-1996, Annex 5, the diversification of tourism activities should include; ornithological safaris, inland fishing/sport fishing , rock climbing , horse riding, river safaris, walking, camel safaris, marine park activities, health spas, helicopter flights, night game viewing and mountaineering etc.

(c) Visits to Museums

The National museums of Kenya play a significant role in the tourism industry. Museums and snake parks receive more than 700,000 visitors per year (Table 2.4). Museums exhibitions represent a cross-section of what visitors see in the country - side and provide them with information about birds, mammals, reptiles and culture of the peoples of Kenya (Visser & Koyo, 1992). This makes the museums a good starting point for visitors to the National parks and other places of interest.

Table 2. 4: Total Number of Visitors to National Museums and Snake Parks (1986- 1990)

('000)

YEAR	1986	1987	1988	1989	1990
National Museum	204.3	185.7	217.2	224.3	234.5
Snake Park	188.1	163.6	167.0	210.1	220.6
Fort Jesus	168.8	187.6	189.6	206.1	226.6
Kisumu Museum	56.3	69.6	38.1	38.8	28.6
Kitale Museum	37.8	34.7	35.1	15.9	21.9
Gedi	32.8	46.5	47.0	35.6	71.1
Meru Museum	29.5	25.1	27.5	12.4	28.4
Lamu Museum	28.0	18.1	13.3	13.0	11.4
Jumba la Mtwapa	8.4	14.6	14.8	14.2	9.4
Olorgesaille	6.5	2.5	2.5	3.4	-
Kariandusi	4.1	2.8	4.3	5.8	-
Hyrax Hill	2.7	4.3	2.7	2.8	-
Others			51.0	48.6	54.4
Total	767.3	755.1	808.3	831.0	906.9

Source: Central Bureau of Statistics

The figures show a steady increase over this period from 767,300 visitors to 906,900 visitors in 1990.

(d) Tourism Visits By Purpose of Business

By the end of the second decade of independence, Kenya had earned herself the enviable reputation of the best managed economy in the region (I.E.A., 1994). There is no doubt therefore, that Kenya has been a commercial centre in this region of Africa. In essence, Kenya has had a large share of international conference bookings, especially in

Nairobi. The number of International conferences held yearly, are another indicator of tourism activity because of the obvious revenue that accrues from the delegates.

Table 2.5. Conferences at KICC (1985- 1990)

YEARS	NUMBER OF CONFERENCES	CONFERENCE DAYS	NO. OF DELEGATES	OCCUPANCY RATE %
1985	35	197	28844	54.0
1986	30	202	487	55.3
1987	58	176	7411	48.2
1988	19	180	3915	49.2
1989	32	111	5510	30.4
1990	36	128	6160	35.1

Source: Central Bureau of Statistics.

Although the number of delegates for purposes of conferences received in 1985, were by far the highest to date, the occupancy rate, indicate a somehow constant trend over the period, showing Kenya was a favoured host to many international conferences over the period.

(e) Sports.

Singling out motor racing, the Safari Rally (K) Ltd. calendar of yearly events and especially the world famous safari rally, had been gaining popularity year by year at the close of the last decade. The event attracts foreign drivers, crews and a host of other visitors including members of the press, to participate. This is a big boast to the tourism industry in Kenya.

2.2 TOURISM PERFORMANCE IN THE 1990s.

At the start of this decade, political activism was intensified. The transition to a multiparty system of government that began in 1991, was seen by Kenyans as the herald of the elimination of perceived repression and the installation of democratic government. Clearly, many people had not reckoned with the fact that the repeal of section 2A by the government was not an expression of the government faith in democratic pluralism. There followed a stream of inflammatory statements from politicians which fueled clashes in the Rift Valley province. Political reforms activities also took issue with some draconian laws such as the *'The preservation of public security Act, Public order Act,* and others and started holding *unlicensed* meetings across the country. The internal security of the country was threatened and tourist numbers especially by purpose of holiday dropped. Tourism earnings were also affected due to the negative publicity that had been associated with Kenya due to insecurity especially in the traditional European market.

Table 2.6: Tourism Earnings (1991- 1996)

YEAR	K£s Million	KShs. Million	US \$ Million
1991	594	11880	432
1992	713	14260	442
1993	1222	24440	413
1994	1405	28100	508
1995	1250	25000	447
1996	1280	25600	474

Source : Central Bureau of Statistics.

Tourism earnings show a somehow constant trend over the years but with a sharp

decline in 1995. However there was an increment from US \$ 447 million in 1995 to US \$474 million in 1996. In 1997, earnings dropped by 11.6 % again portraying an unstable trends in tourism earnings. Given the upward global trend in tourism and travel business, the scenario in Kenya has been earnings that do not reflect the country's incredible potential.

The number of International arrivals dropped drastically in the period 1992- 1993 basically due to election scare that was characterised by insecurity, uncertainty and the authorities incapability of controlling the situation. Table 6.1 (appendix III) shows Kenya's visitor arrivals by country of residence. The uncertainty over world recession in 1993, particularly in Europe also discouraged visitors to Kenya in 1994; visitors on holiday did not change significantly between the two years but those on business and transit increased by 25 percent and 24.1 per cent to reach 122.6 thousand and 58.1 thousand respectively in 1994.

Thus major indicators of tourism portray 1994 as unsuccessful tourism year. While there was a rise in visitor arrivals, there was neither a corresponding growth in hotel occupancy, days of stay nor earnings. As mentioned earlier, Europe was recovering from 1993 recession, and with strained household earnings and unwillingness to spend, Kenyan tourism suffered.

A decline in bed occupancy over the years in the 1990's, all point to a shrinking industry. Table 6.2 (appendix III) shows hotel bed nights occupied by zone between 1991 and 1996. This can be attributed to new and emerging competing markets in the African region e.g. South Africa, Botswana among others. Adverse publicity on the local security situation and the appreciation of the shilling which made Kenya an expensive tourist destination relative to her competitors, also combined to weaken the tourism industry in the country.

◆Visits to National parks.

The total number of visitors to the National parks and game reserves has declined especially from 1994. From 1, 518,500 visitors in 1991, the number has declined to 1,381,700 visitors in 1996 (MTW, 1997). The issue of wildlife management is a contentious one . This is because, effective visitor management in the protected areas involves other stakeholders in addition to KWS, notably KATO, KAHC etc. (Mburugu, 1992) . Each group has slightly different priorities although the interdependence of conservation and tourism is well recognised.

KWS faces a gap of Kshs 1 billion (Economic Review, Feb 5 - 11, 1996). It only generates about Kshs. 640 million on gate collections and only about 3 percent of the tourists contribution goes to conservation. KWS, initially formed as an autonomous wildlife conservation body has had to trim its recurrent budget of Kshs 1.2 billion (Economic Review, June 17-23, 1996) by retrenching its over 8000 employees, decentralisation of activities and pooling of vehicles to save operation costs. KWS also faces the issue of human-wildlife conflict. A report after an investigation commissioned by KWS to determine the extent of the crisis (land owners, country council officials, government officials, tour operators, conservationists and groups involved in the wildlife in one way or another) found that the conflict is as far worse than anyone anticipated. That the local communities viewed wild animals as only a threat to life and property. The concern, seems to have been noted in a prescient comment, nearly twenty six years ago, by a former director of Serengeti Research Institute that the presence of visitors and National Park staff will inevitably have disturbing effects on plant and animal lifeThe conservation of vegetation in such areas (and hence of animals depending upon it) will necessitate protection from the effects of large numbers of people. The time may come when, for the continued survival of the

natural communities (as well as for logistic and aesthetic reasons), the number of visitors to many national parks will have to be limited... The control of people in national parks is one aspect of the management of flora and fauna, which will become more important as the numbers of visitors increase (Lamprey, 1972).

In the recent years, principal problems have risen regarding tourism management in parks and reserves;

- Environmental damage and wildlife disturbance by tourists, mainly through off road driving especially in overcrowded parks.
- Declining visitor satisfaction in overcrowded parks.
- Environmental damage by lodges, especially pollution, etc.

In general these problems and others have been brought by;

- A lack of discipline among tour drivers and private tourists,
- Many drivers equating tourist satisfaction with proximity to the key species and lack of training to provide more diverse educational tourist experience,
- Lack of education of tourists necessary to discourage damaging behaviours,
- Concentration of many tourists into few small areas such as Nairobi, Amboseli and Maasai Mara, and
- Failure to control lodge development in the parks and reserves.

If wrangles in the top management of the conservation body are anything to go by, the sacking and subsequent extension of the term for the body's director in 1998 , point to a very serious scenario. Observers also question the change of hands of the non- executive chairmanship of KWS, in the same year because personal interests and / or politics may have come into play. Any appointments must be in line with proven ability and competence

among many other things in a particular assignment. All these factors have put the KWS in the spotlight. However, as the conservation body was recently transferred from the Ministry of Tourism to Natural Resources, sound management may eventually reign.

◆ **International Conferences.**

The period between 1991 -1996 saw a sharp drop in the occupancy rate with 1992, 1993, 1996 having 6.3 percent, 4.9 percent and 6.6 percent respectively. The number of conferences held in 1996 at the KICC were an all time low with only 8 conferences held. Mainly the sharp drop, is as a result of insecurity attributed to the city of Nairobi especially attacks directed to foreign missions attached to Kenya, as well as the street mugging which threatens personal security of delegates. Indeed conference tourism still suffered in 1997, where KICC hosted only one conference. It had 250 delegates who stayed for only three days.

◆ **Tourism performance in 1997.**

The year 1997, was an election year, and due to uncertainty regarding security, the performance of the industry was at it's lowest ebb. Many tourist bookings were canceled and charter planes that bring package tourists to coastal towns, diverted to other destinations . Ethnic violence in the coast province, the hub of the tourism industry in Kenya, and other parts of the country, the El-Nino weather phenomenon which brought infrastructure to near collapse, were among the factors that made 1997, the worst year for the tourism industry. Statistics from the Economic Survey (1998) indicate that tourism earnings in 1997 fell by 11.6 percent compared to 1996 from Ksh 24 billion to Ksh 22 billion. The average length of

stay declined by 11.3 percent while visitors to national parks fell by 8.3 percent. National museums, snake parks and historical sites were not spared either. They experienced a decline of about 22.5 percent. The two international airports Moi and Jomo Kenyatta also recorded a considerable decline quantified at 7.1 percent and 33.3 percent respectively compared to the previous year. Interestingly, visitors on transit increased by 28.6 percent while those on business decline by 37 percent. Holiday makers went down by 20.6 percent in 1997. Indeed, the statistics show an overall decline for 1997, save for visitors on transit, which meant they were taking business elsewhere.

Violence escalation after the General elections in early 1998, have also made the ability of the authorities questionable as far as quelling violence is concerned. It can also be noted that, visitors coming to Kenya by purpose of business have also been scared away, sports activities such as motor racing drawing very few foreign entrants as its popularity wanes and few tourists visiting the parks due to broken infrastructure and flooded or dusty roads leading to the parks and game reserves.

2.3 A REVIEW OF DETERMINING FACTORS

2.3.1 Infrastructure.

Provision of efficient infrastructure facilities encompassing electricity, transport and communications (roads, rail, ports, and telecommunications e.t.c), water and sewage facilities among others is now widely recognised as indispensable to economic development (Anyango, 1996). Taken together, the services associated with the use of infrastructure account roughly between 7-11 percent of a country's GDP, with transport being the largest sector. Currently, providing infrastructure to meet the demands of business and other users

are the major challenges of economic development. Infrastructure grows linearly with economic output. One percent increase in the stock of infrastructure is associated with one percent increase in GDP (World Development Report, 1994: Infrastructure for Development, World Bank).

Infrastructure has traditionally been the preserve of the public sector, particularly in developing countries, partly on account of its strategic importance to the economy and partly because of the large investment costs and long gestation periods before an investor can recoup returns on investment and which was thought to act as a disincentive to private investments. In Kenya, the government owns, operates and finances all infrastructure primarily because the production characteristics and public interest involved were initially thought to require 'monopoly' including economies of scale among other considerations.

The serious problems facing the development of infrastructure and its maintenance, are directly linked to the allocated financial resources, legal and institutional framework required for development of new infrastructure, the operation and maintenance of available infrastructure. It is against this background that the implications of poor infrastructure development and operations to business and the economy as a whole, are increasingly becoming a key issue especially to the tourism industry in Kenya.

Current status of infrastructure in Kenya.

Infrastructure facilities in Kenya have been characterized by a supply response that has not been as strong as expected. Its state is currently considered to be in a 'crisis' in the sense that a shortage and deterioration of services and investments are seriously interfering with the achievement of tourism development objectives. The status of infrastructure in

Kenya has not changed greatly since the late 1980s: poor conditions, low performance standards and weak finances are still the norm (World Bank, 1992). The situation has even deteriorated with the 1997 El Nino weather phenomenon posing serious reservations on disaster preparedness of government departments concerned.

2.3.2. Road Infrastructure.

Existing Network.

The Existing network has remained principally the same as it was in 1963, an estimated 150, 600 Kms. The existing classified road network totaling 63, 663 Kms is as follows:

- Paved classified road network, 8, 803 kms.
- Unpaved classified road network, 54, 354 Kms.

Other roads include:

- The unclassified network, 87,000 Kms which includes some 8,000 Kms of rural access roads, and 500 Kms of special roads.
- Urban roads, 10,330 Kms within the major urban centres in Kenya.

The Condition of Roads.

The road network in Kenya is currently characterised by poor conditions. The condition status of the classified network (63,290.7 Kms) according to available data (Table 6.3, appendix III) is as follows:

- 9303.7 Kms (14.7%) the network is good or in satisfactory condition.
- 27,215 Kms (43%) in fair condition.

- 26,771.9 Kms (42.3%) in poor/bad condition.

Kenya's main industrial towns are currently characterised by poor road infrastructure. In Nairobi, Kisumu, Eldoret, Nakuru and Mombasa, the paved network condition is as follows:

- 19 % in good condition
- 15 % in fair condition, and 66 % in poor condition.

It is evident therefore that the state of the roads in Kenya discourage tourism development with the worst hit group being transport firms (tour operators, travel agencies , car hirers e.t.c.).The situation of roads has been so poor in the 1990s that it has almost collapsed especially with the El Nino weather phenomenon in 1997. Therefore the situation needs to be addressed especially in the light of tourism industry.

2.3.3. Railways Infrastructure.

This is a prime alternative to road transport in Kenya for tourists and especially due to the deplorable condition of the Nairobi- Mombasa highway. Kenya has a 21,00 mile single track railway which passes through the major industrial and agricultural areas connecting Nairobi and Mombasa. The principal lines connect Mombasa with Malaba, and Nakuru to Kisumu. The railway is connected to 163 stations throughout the country (KRC, 1995). The line between Mombasa and Malaba is old but in reasonably good condition. The Nakuru - Kisumu branch line has weight restrictions and therefore cannot take heavy locomotives beyond class 87 (see Table 6.4, appendix III) . The KRC locomotive fleet is composed of old units, the most recent mainline locomotive having been acquired in 1987, the oldest in 1960, thus a significant proportion of the locomotives is rated as poor with a small proportion being fair and none, as good.

The vital attribute of the locomotives is availability which is a measure of the quality of maintenance, expressed in the average number of locomotives serviceable compared to the total fleet. The availability of the mainline class locomotives peaked at 53.6 percent during the financial year 1990/91, while the availability of shunting locomotive classes 35/46/47 has virtually stagnated at just below 50 percent since 1990/91.

2.3.4. Power Infrastructure.

In Kenya, generated electricity comes from indigenous causes of energy namely: hydropower and geothermal. By 1990, the installed power capacity stood at 722.6 MW with hydro comprising the highest share at 497.5 MW (69 %) of the total installed capacity and thermal & geothermal representing 25 percent (180.1 MW) and 6.2 percent (45 MW) respectively. In 1992, the installed capacity declined by 2.9 percent from a peak of 828.6 MW in 1991 to 804.6 MW. Out of the 1992 capacity, 603.5 MW (75%) was hydro, 156.1 MW (19%) was thermal and 45 MW (5.6%) was geothermal. As at June 1994, out of an installed capacity of 736.5 MW, effective generation was only 653.8 mw. Table 6.5, (appendix III) shows the major power projects in Kenya.

It is therefore evident that, *since 1992, there has been no new additional generation capacity installed.* This is a sorry state because, the total supply required to meet demand is currently projected to grow at an average of 5.5 percent. However, available statistics over the period 1987 to 1994 indicate an average annual growth rate of 4.5 percent. Between 1996 and 2001, demand for electricity is projected to grow at an average of 4.9 per cent per annum (MP & ND, 1997).

Many hotel establishments have been crying foul over power cuts and unreliable generation especially at the coast. This has prompted many resorts to invest heavily in

standby generators to remedy the shortfall. Power supplies have been declining both in terms of installed capacity and effective generation. This is attributed to old age and lack of spare parts. Similarly, replacement has been low due to tariffs which do not reflect the real cost of power provision: tariffs have over the years remained below marginal cost levels, and their value have been continuously eroded by delays in getting approval from the government which lead to unnecessary delays in implementation or non- implementation altogether.

2.3.5. Water Supplies

Existing Water Supplies and Distribution Systems

The main sources of water resources in Kenya have been identified as comprising of rivers (43%), ground water (31%) , dams (20%) , lakes (10%) and others (3%). In urban areas, water supplies are the responsibility of local authorities. In practice, capital investment for water supply in urban centres and centres of industrialization has not kept pace with high levels of population growth and the industrial demand and tourists (NEHSS, 1984). With the exception of Eldoret (Table 6.6, appendix III), all other major towns in Kenya - Nairobi, Mombasa, Nakuru and Kisumu, have a demand for water that by far exceeds supply.

Conditions of Water Infrastructure.

The facilities found in most of the earlier established water systems are old units like pipes, pumps, treatment plants etc. The aged systems are prone to frequent bursts with increased pressure. Pumps breakdowns are more frequent while the spare parts for such pumps are difficult to source .Water billing and revenue collection is also poor and hence replacement has been very slow .

2.3.6 The Impact of Infrastructure on Tourism

Across the sectoral board, the dominant central issue is inadequate provision, maintenance and poor management. In general therefore, infrastructure in Kenya is characterised by:-

- Inadequate maintenance of existing infrastructure facilities and equipment.
- Ageing infrastructural facilities.
- Mis - allocations (poor prioritisation) of infrastructure investment projects.
- Waste and inefficiency leading to distribution losses especially power and sectors.
- Inadequate investment /low replacement of infrastructure characterised by demand which exceeds supply .

It is clear that while a variety of other facilities and services are essential towards the successful operations of tourism activities, the role of infrastructure cannot be overemphasized. Consequently, infrastructure which is either inadequate in proportion, dysfunctional or in poor state, has heavy impact on tourism development. The impact can be reviewed from the following parameters;

Increased Capital Investment.

One of the key impacts of the poor state of infrastructure in Kenya is that it has led to the need for excessive amounts of working capital and increased capital investments on the part of the industry, thus;

- Standby generators due to frequent power outages and poor quality of power provisions,
- Sinking of boreholes to meet shortfalls in water supplies,

- Installation of expensive PABXs, radio call systems e.t.c due to frequent cuts telecommunication channels.

Loss of Market Potential.

The limitation of infrastructure has another attribute related to under capacity aspects. In this respect, weak transport and telecommunication links in particular and limited associated facilities such as impassable roads, all lead to the inability of investors in tourism industry to fully meet their potential especially with regard to reaching the markets.

Quality Service.

Tourism industry is a hospitality industry. Thus quality service is an important aspect of any tourism product. Infrastructure facilities are inherently meant to enhance and promote quality. However, poor infrastructure leads to poor quality and one implication of loss of quality service which has serious ramifications on the Kenyan product, is the overall bad reputation and negative attitude towards Kenya in general in both local and international markets.

Increased Operational Costs.

In light of poor state of infrastructure, most tour operators have to bear additional costs mainly due to inherent inefficiencies of public sector institutions responsible for infrastructure. These institutions are noted to suffer from poor management capacity and lack of autonomy, poor commercial 'vision' and poor resources utilisation. Tour firms especially have to incur increased and high operational costs due to constraints, such as:

- Lack of adequate feeder and access roads leading to increase in costs.

- Poor state of roads causing vehicle breakdowns.
- Cost of vulnerability where such firms are dependent on public infrastructure which does not work but without a suitable alternative.

The combined effect to the tourism industry is high costs which limit competitiveness of the Kenya product and services. The poor state of Kenya's infrastructure is severely limiting the country's rate of economic growth. As a major prerequisite to tourism development and investment, it also scares away potential investors.

2.3.7. The Marketing and Management of Tourism.

Marketing in tourism is a systematic and coordinated execution of business policy by tourism undertakings whether private or state-owned at local, regional, national or international level to achieve the optimal satisfaction of the needs of identifiable consumer goods, and in doing so achieve an appropriate return.

Marketing of tourism in Kenya has been a sad story, mainly because of lack of policy and prioritisation. In an article headed 'Tourism In the Doldrums - Visitors shunning Kenya' (Economic Review: March 8- 24, 1996) a MCTA executive remarked, 'the industry (tourism) will slump to irredeemable levels unless promotional activities are undertaken.' This is evidence that the issue of marketing as far as the industry in Kenya is concerned is wanting. A drastic review especially focusing on marketing and diversification of tourist attractions to both traditional and non- traditional sources, remain the least addressed issue to the crisis. With most resorts concentrated around the coast and the savanna grassland, the industry should seek fiscal incentives to establish more facilities in the Eastern, Western and North -Eastern regions which are less frequented by tourists. Kenyan target market

remains largely Western oriented with little traffic from the Far East, Latin America and Australia mainly due to lack of connecting flights from these regions to Kenya. For a long time, the Ministry of Tourism and Wildlife has been a toothless Ministry unable to justify its existence as far as manning Kenya's image abroad is concerned. The adverse publicity Kenya receives abroad has made it very difficult to sell Kenya especially in the European Market. Other African countries have been beneficiaries of Kenya's woes.

There had been pressure to the government from private players who include investors, hoteliers and tourism organisations such as KATO , KATA, MCTA, ATH among others for the formation of a Kenya Tourist Board. This board is among other things supposed to promote Kenya collectively and act as an advisory board to all stake holders. The KTB was eventually formed in 1996 and was to undertake the following functions :-

- Overall advisor to the government and the private sector on tourism issues,
- Mandate to promote and market Kenya as a tourist destination,
- Undertake public relations for the industry,
- Resolve conflicts between stakeholders,
- And monitor the quality and standards of tourism facilities, improve the environment for tourism business, initiate public awareness programmes and counter any negative impression affecting the industry.

However, any visitor to Kenya is more likely to note destruction than the wonders the country has to offer in terms of tourism ! It is interesting that the Board is yet to put its house in order especially in the issue of funding. The Board Secretariat is yet also to formulate a policy on tackling intriguing issues in tourism, save for frequent assertions that it has opened an office in Europe to market Kenya *aggressively* .

The main issue that require prioritisation for a vibrant tourism market is internal

management. In 1995, there was a national tourism master plan in the form of a parliamentary sessional paper which sought among other things to remove discriminatory custom duties levied on tourists and reduce the number of tax remittance points. The master plan also outlines, a set of measures including limited preferential customer duty on a range of materials and equipment used in the constructions of tourists' hotels aimed at enticing foreign and local investors into the sector. This sounds very encouraging but one wonders the extent to which such recommendations have been implemented.

The marketing of tourism is a thorny issue. This is so, because it is complicated by a multiplicity of factors (Gakuru, 1993). Firstly, the components to be amalgamated in order to make up a complete package for offering to customers, are numerous. The suppliers of these components are also very different. Again, the product can be packaged in a package form or the individual tourist can package it himself or herself through his own efforts or with assistance of the travel agents. As such, there are different ways of combining these components for consumption by the tourist. It is therefore difficult to decide on the right approach of developing a tourist product strategy. In essence, the individualistic nature of tourism complicates the marketing process. Wahab (1975) pointed out therefore that;

"The individualistic nature of tourists dictates a 'policy' that is 'market oriented' and not 'product oriented'.....This calls for a careful study and detailed information collected about the actual and potential market "

2.3.8. Security

In November 1991, a group of parliamentarians from the Rift valley province held a series of highly publicised meetings at which they called for a federal system in Kenya. The federalism they had in mind was to be based on Kenya's ethnic units. In their thinking, each ethnic group was to occupy the geographical region most closely associated with its origins.

To effect this, they called for expulsion of non indigenous tribes from the Rift Valley province. Shortly after these meetings there begun a spate of unprovoked violence against the Luos, Kikuyus and the Luhyas. Since then to date (1998) the security situation in the country has never been the same again. After the December 1992 multi-party elections, the clashes continued to escalate with the most hit areas - Molo, Londiani, Burnt Forest, being declared security operation zones (I.E.A. 1994).

Insecurity in the country has had a very severe effect on the tourism industry. The situation was so bad in 1997, following mayhem and violence at the coast, that the giant industry was at a brink of disaster- collapse. There followed a valanche of booking cancellations due to the ebbing violence, hotels and tour companies sending their employees on compulsory leave, hotel establishments closing down as the safety of tourists themselves was not even guaranteed. The tourism industry was loosing revenue at the rate of KShs.650 million a month because of political uncertainty and violence in Mombasa, Malindi and other coastal tourist towns according to a local daily on Jan. 6, 1998. Other visitors were skipping Kenya, ahead of the 1997 general elections. The start of the year 1998, was very bumpy for the industry . Infact the tribal clashes in some parts of the Rift valley province immediately after the elections were almost 'predictable'.

Many worried hotel owners are currently seeking more domestic tourism friendly packages as well as lobbying the government for a tax payment moratorium to reduce losses. Even after the government formed a tourist police unit at the end of 1995 (Economic Review Jan. 4-8, 1998), growing insecurity and a combination of alarmist statements from politicians has portrayed Kenya as an unsafe place in the eyes of the visitors, so much so that, foreign governments from time to time give precautions to their nationals about traveling to Kenya. So bad is the situation that, at the end of 1995, for example, when an

Italian magazine 'Panorama' is claiming that the deadly 'Ebola virus' has its roots in Kenya - an obvious adverse publicity, only alarmist claims linking Italians in Malindi town with antigovernment activities carry the day, instead of reassuring the European market particularly about the quality and safety of Kenya as a long haul destination.

The security of a citizen in a country is paramount, let alone that of the visitor. Tourism is an industry that is hypersensitive to insecurity and no matter how well promotional activities are coordinated, the foreign press is very particular on security. One thing is clear that the security standards are still very low in Kenya, and this will continue hurting the tourism industry. Otherwise, *no peace no tourists*.

2.3.9. The Beach Boys Issue.

Amid beach levies imposed on tourist resorts (per bed nightly on tourists) by KWS, for the management of the Kenyan beaches, the issue of who should manage this important resource is still confusing. While some measures have been taken to restrict and regulate beach activities by beachboys, curio and souvenir vendors, the security and maintenance of beaches is still largely dependent on individual hotels. Many tourists still complain of harassment from beachboys. However, there is an imperative to the issue. Some industry observers feel that beachboys are important, while others advocate that they should be stamped out. Either way, no valid reasons are given and the issue remains that, any incident of harassment of tourists by beachboys does not bode well for the industry in general.

It is evident therefore, that there are many factors that do affect tourism performance which have been directly or indirectly reviewed in this chapter. Others such as the need for specialized training for the industry are crucial as this has a direct relationship with the quality of services provided. Governance is usually intertwined with political stability and

security which determine the general economic atmosphere. However, some experts in development question the continued expansion of tourism industry at the expense of agriculture. There exists evidence that tourism, especially wildlife- based reduces food production in Kenya's rangelands, where the majority of Kenya's nomadic communities live (Awoundo, 1982). This imperative has probably brought about the human - wildlife conflict that now exists thus still effecting the performance of the industry.

2.4.0 Tourism Foreign Market Entry Modes.

The choice of a particular foreign market entry mode is a function of a large number of diverse factors. It varies with product characteristics such as degree of differentiation, importance, age and technology content (Davidson, 1982; Goodnow, 1985). It may also depend upon certain characteristics such as size and resources, degree of diversification, and corporate policies (Root, 1987). Finally, entry mode choice may also be determined by external environmental factors: host country trade and investment restrictions, host country market size, host country geographic and cultural distance, and exchange rate fluctuations (Goodnow and Hansz, 1972, Bauershmidt et al., 1985).

Any decision maker's knowledge of foreign markets, and the perceptions, opinions, beliefs and attitudes are born out of market knowledge (or lack of it). Market knowledge is the knowledge relating to the market and the market - influencing factors. The tourism industry players in Kenya, seem to be blinded as far as promotion is concerned. They should have to thoroughly assess the level and pace of resources commitment and act on the influencing factors to decide on the choice of the foreign market entry mode.

Decisions in the tourism industry therefore seem to be often made in an unfamiliar environment characterised by paucity of reliable information. There has also been too much

resource commitment on promotion without a check on the intervening variables of uncertainty and perceived risk. Lack of market knowledge creates uncertainty and heightens the risk perceived by decision makers in a given situation (Johanson and Valine, 1977). As a soft- service industry, the sensitivity involved in tourism is extremely high, for it is difficult to decouple production and consumption. Hard decisions therefore have to be made which have to start from somewhere; thus prioritisation. While this research assesses the type, severity, prevalence and extent of the impact of the various factors under review, a prioritisation is necessary to determine the starting point for the industry which has lacked previously, making tourism head for a slump.

CHAPTER THREE

RESEARCH DESIGN

3.1. The population

The population of interest for this study consisted of those organisations that directly deal in or are affected by the tourism industry including tourists. These organisations included; the Ministry of Tourism and Wildlife, KWS, transportation firms (tour operators, travel agents, car hirers), catering and accommodation units (hotels, resorts, lodges), beach boys/ curio vendors / beach operators. A list of classified hotels in Kenya was obtained from the MTW as of 1997 while that of tour operators was obtained from the members directory of K.A.T.O. as of 1997.

3.2. Sampling: The sample Units.

The population was further defined to qualify the items that would provide the sample units;

- (i). The Tourism Marketing Department of the MTW.
- (ii). The Tourism Development Office of KWS.
- (iii). Tour operators registered in Kenya and who are members of K.A.T.O.
- (iv). Tourists, who were reached out through Front Office departments of various selected hotels from the classified list.
- (v). Hotel managers from classified hotels, resorts and lodges from the list of classified hotels by the Department of Planning of the MTW.
- (vi). Beach operators / Curio vendors in the North and South coast mainland beaches of Mombasa.

The Sample Size.

At least three officers were to be interviewed from the MTW (Marketing Department) and from KWS (Tourist Development office) to represent the two organisations. A sample size of all major hotel chains was selected using a disproportionate stratified sampling procedure, the basis being the hotels class. One strata was considered - major hotel chains (3 stars and above) and individual hotels were ignored. From the list of tour operators, a sample size of 15 operators (based on group tour companies) using random sampling procedure were selected. A convenience sample of 25 tourists and 20 beach operators was also selected using judgmental sampling.

3.3. The Research Instrument.

The information sought in this study was gathered from six categories of respondents i.e. the Ministry, KWS, hotel managers, tourists, tour operators and beach boys. An Interview was granted by the KWS, Tourism Development Office while for the rest of the categories, self-administered questionnaires were used except for tourists where a 'drop' and 'pick' method was used. The questionnaire was both structured and unstructured. It contained two parts, A and B. Part A had both open-ended and closed questions whereas part B had matrix questions.

3.4. Data Analysis.

The study is descriptive in nature. Therefore descriptive statistics was used in part A of the questionnaires. Churchill (1991: 144) notes that a descriptive study can be used when the purpose is among other things to describe the characteristics of certain goals and make certain specific predictions about them. Thus tabulations, proportions / percentages were used.

In Parts B, Factor Analysis was used where respondents were asked their opinion on one- to five Likert scale, to determine the most influential factors on tourism performance, to form the basis of prioritisation. An SPSS package was used.

3.5. An Overview of Factor Analysis

Application

Factor Analysis is used for classifying a large number of interrelated variables into a limited number of dimensions or factors. It also identifies the underlying constructs in the data, which are termed as factors.

Input

The input to factor analysis is usually a set of variable values for each respondent in the sample. Factors that influence tourism performance were divided into the following subconcepts;

Performance (p) = 1(infrastructure) + 2 (marketing / promotional activities) + 3 (security)
+ 4(tourism attractions) + 5 (government moratorium / incentives). e.t.c.

Values attached by respondents (five cases) to variables attributed to such factors were inputted inform of a matrix.

Outputs

Factors scores: One output of a factor analysis program is value for each factor for all respondents termed as factor scores.

Factor loadings: This is the correlation between factors and variables. They are used to interpret the factor in the sense that the higher the loading, the more the variable explains the factor.

Communality : Shows the proportion of the variables variation to the total variation that is involved in the factors.

Eigen values: Is the sum of the squares of its factor loadings and shows the amount of variance extracted by the very factor.

Variance - explained percentage: Help to determine the number of factors to include and the quality of their representation of the original variables. Hence, the factor with the highest percentage of explained variance present the most parsimonious representation of the variables, and is prioritised first.

To improve interpretation of the principal component extraction, a rotation scheme in factor analysis - varimax rotation (Aaker & Day, 1990) was used until there was a clear association between the variables attributed to performance of tourism and the underlying factors. Churchill, (1991: 909), also noted that there is empirical evidence which indicates that varimax tends to produce (factor) loadings that are more interpretable. Others who have validly used the model include, Kipngetich (1991) and Tarus (1997).

CHAPTER FOUR

THE FINDINGS

4.1. Analysis of Responses.

Data in part A of the questionnaire is summarized in of proportions while part B is factor analysed. Five types of data are analysed in this study from the Ministry, hotel managers, tour operators, beach operators and tourists as well as highlights on an interview with an officer of KWS.

Table 4.1 : Response rate.

Respondents.	Number	Response	%response rate
Hotel Chains	12	11	91.6%
Tour operators	15	4	26.6%
Beach operators	20	10	50%
Tourists	25	15	60%
MTW	1	1	100%

Source: Primary data

From the table 4.1 above, the response rate for tour operators based on group companies and registered in Kenya was very low at 26.6%. This was in part due to unwillingness on the part of the respondents to fill the questionnaire although the targeted number was contacted. Only one officer of the MTW was interviewed who was the Senior Tourist officer, MTW and was deemed highly placed enough to deliberate on the issues raised in the questionnaire. On average the response rate was deemed satisfactory by the researcher for purposes of analysis.

TABLE 4.2: Relative size of hotels.

Number of hotels in the chain	Respondents in the category (Hotels Managers)
1-3	4
4- 6	2
7- 9	2
10- 12	3
Total	11

Source: Primary data.

The respondent hotels had employees ranging from 115 to 1124. Beach operators were either lone beach boys or organised in groups which ranged from 1 to 30 persons. The number of employees for the respondent tour firms with local offices only ranged between 15 and 40 persons.

Location of offices.

All the respondent hotels have offices locally while six of the hotel chains have both local and foreign offices. All the respondent tour operators had both local and foreign offices while all beach operators were locally based.

Type of customer and Method of acquisition.

Of the hotel chains, 27.3 percent dealt purely with foreign visitors while the remainder, 72.7 percent acquired both local and foreign customers. All the respondent tour operators and beach operators cited both local and foreign clients. Apart from hotel and tour operator groups, a question was put to the beach operators as to what was their main business. The

following were cited as their main activities;

- ◆ Selling of curios and souvenirs
- ◆ Performing dances/ entertainment
- ◆ Prostitution
- ◆ Boat operators
- ◆ Massage and hair - do business
- ◆ Drugs peddling
- ◆ Selling of fruits.

On customer acquisition, 81.8 percent of the hotel chains cited promotion / marketing efforts while the same percentage liaised with other organisations such as tour operators to acquire clients. Only 10 percent of the hotel chains cited self- patronage while 11 percent cited other means which they did not specify.

Beach operators acquired customers mainly through liaison with hotels for entertainment while 50 percent emphasized self patronage by customers. Only 30 percent engaged in any marketing or promotional effort for their activities. For tour operators, they did acquire customers on equal proportions through promotion, liaison with other organisations as well as customers patronizing on their own.

Volume of Trade.

All the hotel chains and beach operators responded that the volume of trade for their operations was decreasing. However 25 percent of tour operators indicated their volume of trade was increasing. This contradicted the general consensus, that tourism activities are in

The following reasons were attributed to the declined volume of trade in tourism.

TABLE 4.3: Factors Attributed to Poor performance in Tourism Activities

FACTORS	RESPONDENTS					
	HOTELS		TOUR OPERATORS		BEACH OPERATORS	
	No.	%	No.	%	No.	%
Poor infrastructure	7	64	4	100	1	10
Insecurity ¹	9	82	4	100	7	70
Poor marketing	4	36	1	25	1	10
Bad publicity abroad	2	18	1	25	1	10
Diseases	2	18	-	-	3	30
Political instability	2	18	4	100	2	20
Tribalism	-	-	4	100	2	20
Misunderstanding between operators	-	-	3	75	1	10
El Nino rains	-	-	-	-	2	20
Government taxation burden	10	91	4	100	-	-
Corruption(General)	3	27	1	25	-	-
Economic crisis	1	9	1	25	-	-
Over usage of National parks	1	9	3	75	-	-
Strong shilling	1	9	-	-	-	-
	n=11		n=4		n=10	

¹No reasons were attributed to the contradiction by the tour operators who reported an increase in their volume of trade.

Other factors attributed to the decline in the tourism industry were given as follows;

- ◆ Lack of a re-investment budget in the tourism industry.
- ◆ Lack of necessary care, love and attention to tourists / visitors to Kenya.
- ◆ Poor quality services in the industry .
- ◆ Low training standards (mushrooming of sub-standard colleges).
- ◆ Stiff competition from other destinations.
- ◆ Circumstantial participation by tourists in corruption.
- ◆ A lack of prioritisation of MTW obligations and liaison with relevant government departments.
- ◆ Low standards in the National airports and breakdown of connecting routes to the Kenyan destination.

Hotel managers, beach operators as well as tour operators gave the following considerations to improve the tourism industry in lumpsum.

- i) Rehabilitation of infrastructure.
- ii) Curbing inflation for a realistic value of the shilling.
- iii) Eradication of corruption/ graft and eventual prosecution of culprits.
- iv) A guarantee of security at all times in any part of the country.
- v) Reduction of bureaucratic tendencies as far as taxation is concerned.
- vi) Collective marketing efforts.
- vii) Cutting of the powers of the MTW and assigning the docket of marketing to KTB.
- viii) Preservation of original culture but to non-exploitative levels.²

²A manager in the North coast of Mombasa, that culture emphasis had become a political tool in Kenya leading to highly volatile situations in the Maasai and Pokot communities in Kenya.

- ix) Political maturity - the country does not have a clear political dimension, thereby overlapping economic policies.
- x) Control of mushrooming sub-standard hotels
- xi) Vetting of all tourism investments where only long-term and serious ones shall be considered.
- xii) Setting of media consultation offices, restrained reportage of events in Kenya and aggressive countering of adverse publicity abroad
- xiii) Control of Kenya Airways monopoly on landing lights.
- xiv) Improvement of physical environment to reduce health hazards such as communicable diseases and other unexplained disease outbreaks.³

ANALYSIS OF RESPONSES BY TOURISTS.

A convenience sample of 25 tourists by judgmental sampling was drawn from the coastal area hotels and in Nairobi. However, as indicated earlier, the response rate was 60 percent.

Frequency and Nature of visits.

About 35 percent of the respondent tourists have visited Kenya between six and forty times previously. 65 percent indicated that it was their first visit. The higher percentage of first visits to the country point to the fact that although the industry is in a slump, tourists are still aware of Kenya as a holiday destination. As to the nature of visits, 85 percent of the tourists were on holiday while 10 percent indicated they were on visit by purpose of

³It was noted by a hotel manager in Malindi that due to laxity and lack of serious research by medical personnel in Kenya, many killer diseases have not been explained in the recent past and have thus been branded 'mysterious'.

business. Six percent were on transit to other destinations while a mere four percent visited Kenya for other purposes which they did not specify.

Main attractions.

The respondent tourists indicated the following attractions as their main reasons for visiting Kenya;

- ◆ Business
- ◆ Tropical climate / weather
- ◆ Recommendation from friends.
- ◆ Location and value for money (Good price)
- ◆ Volcanoes and the Great Rift valley
- ◆ Group safari
- ◆ Family holiday and sports
- ◆ Beach and Diving
- ◆ Peoples and old fascination for Kenya
- ◆ Excursions
- ◆ Animals especially the Big Five

Tourists were asked about visits to other countries in Africa, and 75 percent favoured South Africa as the most attractive destination followed by the Seychelles. The following were the factors attributed to their choice;

Table 4. 4: Reasons attributed to the most desirable destination in Africa

FACTOR	FREQUENCY	%
Diversified	12	82
Good Infrastructure	14	91
Political stability	10	64
Entry convenience	14	92
Affordable holidays	9	58
Shopping and Business opportunities	11	76

Source: Primary Data

The tourists were then asked about comfort during their stay in Kenya. 60 percent indicated they were fully satisfied while 40 percent were fairly satisfied. On whether they would make another visit to the country, 86 percent indicated that they would return, but not in the near future, while 14 percent were non-committal. Of the respondent tourists, 46.6 percent were female while 53.4 percent were male.

THE PRIORITIES OF MTW AND KWS

A senior tourist officer who responded to the research questionnaire cited the following main functions of the Ministry in regard to the tourism industry:

- ◆ Development
- ◆ Planning
- ◆ Promotion and marketing
- ◆ Control and regulation

The marketing department in the Ministry is particularly bestowed with;

- ◆ Promotion / marketing and selling of the tourist attractions
- ◆ Facilitation of services and information on tourism.

On the relationship between the MTW and KWS, KTB and the Ministry of Natural Resources, the officer indicated that they were 'cordial'. However, there was a feeling that the KWS, should only play the role of the 'custodian' of wildlife while KTB should act to 'supplement' the efforts of the Ministry as far as promotion of tourism attractions was concerned. On the Natural Resources ministry, the officer felt that a closer relationship was necessary as far as conservation was concerned.

The Ministry did highlight on the steps it is undertaking to achieve the projected one million tourists per year by the 2000. However, the answer was overtaken by the event of a special workshop which actually changed the target to two million tourists per year by the 2010. The MTW did not feel Kenya is threatened by other African countries mainly because it felt Kenya was unique. "We only need to diversify (attractions), keep high standards, promote environmentally suitable attractions and mount a more aggressive promotion campaign in the region and internationally." The tourist markets in the world that Kenya was most focused currently were given as the traditional tourist originating markets in Europe and North America. However, the Ministry indicated that it was venturing into the Far East markets and other new markets. No reasons were given for the latter, nor the ways of venturing into the new markets.

The main mission of KWS was revealed by its Tourism Development Office as conservation of wildlife and all that appertains to that mission. For effective management of the conservation body, the country is divided into eight regions namely; Central, Tsavo, South, Northern, Western, The East, Coastal and Mountain regions of Kenya. The office

also revealed that KWS operates under a memorandum of understanding with the MTW as well as the Ministry of Natural Resources.

4.2. FACTOR ANALYSIS (PRIORITISATION)

Factor analysis was performed on part B of the questionnaires, in order to prioritise the factors that do have the most influence on the performance of the tourism industry. This part of the questionnaire had 13 variables for the 5 cases (strata of respondents) on the factors that do influence the performance of the tourism industry. Samples of the questionnaires are attached in appendix II. A statistical package SPSS (Statistical Package for Social Sciences) and SYSTATW 5 (Window based) were used to analyse this data. The results are presented here below.

TABLE 4.5 : SUMMARY STATISTICS.

	Mean	Std Dev
V1	3.40000	1.34164
V2	4.60000	.54772
V3	2.40000	1.34164
V4	3.80000	1.09545
V5	3.20000	.83666
V6	4.60000	.54772
V7	3.80000	1.09545
V8	4.20000	.83666
V9	3.60000	.54772
V10	3.40000	1.34164
V11	3.20000	.83666
V12	3.40000	.54772
V13	2.80000	1.09545

Most influencing factor for the matrix questions was represented by a score of five (5) while least influence was represented by a score of one (1). The table above shows that variables 2, 6 and 8 had high mean scores. This is because the MTW felt strongly that marketing was the factor mostly influencing the tourism industry. This was also reflected by some beach operators thus mean scores of 4.6 in both V2 and V6 while most tourists felt they did not get real value for their money - V8. The standard deviation does not seem to show a wild variation of the answers to questions by the respondents. To generate the factors, a correlation matrix was therefore necessary, and the results are as follows;

TABLE 4.6: Correlation matrix for respondent No. of cases = 5; items = 13

	V1	V2	V3	V4	V5	V6	V7
V1	1.00000						
V2	-.06804	1.00000					
V3	.16000	-.06804	1.00000				
V4	-.44227	-.16667	-.44227	1.00000			
V5	-.31180	-.32733	-.31180	-.49099	1.00000		
V6	-.06804	.38600	-.06804	-.16667	-.32733	1.00000	
V7	-.44227	-.16667	-.44227	1.00000	-.49099	-.16667	1.00000
V8	-.31180	-.32733	-.31180	-.49099	.68040	-.32733	-.49099
V9	-.06804	.27210	-.06804	-.16667	-.32733	.31180	-.16667
V10	.32100	-.06804	1.00000	-.44227	-.31180	-.06804	-.44227
V11	-.31180	-.32733	-.31180	-.49099	.44227	-.32733	-.49099
V12	-.27217	-.16667	-.27217	.16667	-.21822	-.16667	.16667
V13	-.44227	-.16667	-.44227	.21822	-.49099	-.16667	1.00000

V8 V9 V10 V11 V12 V13

1.00000

-.32733 1.00000

-.31180 -.06804 1.00000

.49000 -.32733 -.31180 1.00000

-.21822 -.16667 -.21822 -.32733 1.00000

-.49099 -.16667 -.44227 .49099 .16667 1.00000

Table 4.6 above shows the correlation matrix of the thirteen variables which were contained in the part B of the questionnaire. This is the basis of generating factors and shows the inter-correlation among variables. For high correlation, the number should be either close to 1 or -1. Zero indicates no correlation. For example variable 1 has a low correlation at -0.06804 with variable 2. Variable 10 correlates perfectly highly with variable 3 at 1.0000. Variable 8 also correlates fairly highly with variable 5 at 0.6804. This shows how factors are grouped together through correlation by the model.

TABLE 4.7: Initial output : Variable, Communality and Eigen Values.

Variable	1	2	3	4	5	6 ,.....13
Communality	1	1	1	1	1	1 ,.....1
Eigen values	5.8	4.8	2.1	1.3	1.1	0 ,.....0
% variance	51.3	22.2	14.1	9.6	2.8	0 ,.....0

Table 4.7 above shows the initial output of variables, communality and Eigen values of the initial factor matrix. The communality is the proportion of the variable’s variation to the total variation that is involved in the factors. There is full contribution of the variables to the factors hence, as all are indicated by 1 or 100%. The Eigen values show that there are five main factors with the following contributions;

Factor 1....51.3 % of the variation

Factor 2....22.2 % of the variation

Factor 3....14.1 % of the variation

Factor 4....9.6 % of the variation

Factor 5....2.8 % of the variation

Factor 1 explains 51.3 percent of the dimension of performance followed by factor 2 with 22.2 percent up to factor 5.

Table 4.8 : Initial Factor Score Coefficient Matrix.

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5
V1	.01559	.25675	.04589	.06094	-.10833
V2	-.01804	-.04328	.29539	.03946	-.16791
V3	.01559	.25675	-.04589	.06094	.15559
V4	.22561	.07688	.06513	.16438	-.06513
V5	.16791	-.10833	-.06595	.13266	.35432
V6	.01804	.04328	.29539	.03946	-.04589
V7	.22561	.07688	.06513	.16438	-.04328
V8	.16791	-.10833	.06595	.13266	.01840
V9	.01804	-.04328	.29539	.03946	.04348
V10	.01559	.25675	.04589	.06094	.07188
V11	.16791	-.10833	.06595	.13266	.06648
V12	.09718	-.04348	.03448	-.88896	.03485
V13	.22561	-.07688	.06513	.16438	.28467

Table 4.8 above shows the initial factor matrix, thus the coefficient (factor loadings) between the factors and the variables. At a glance, Variables 4, 7 and 13 loads higher to Factor 1; variables 1, 3 and 10 loads higher to Factor 2 while variables 2, 6 and 9 to Factor 3. Only variable 12 loads heavily but negatively to Factor 4. Factor 5 is loaded by variables 5 and 13.

However, all the loadings except for factor 4 are below 0.3 thus do not contribute sufficiently to the underlying constructs (factors) identified by the model. On the other hand, the first factor (Refer to table 4.7) has got a percentage of explained variance of 51.3 % far much higher than the rest four identified factors. This means that the first factor is explaining more than half the desired dimension of the tourism performance. Hence there is

need to rotate the initial matrix for easier interpretation using varimax rotation.

Table 4.9 : Final Output of Variable, Communality and Eigen Values.

Variable	1	2	3	4	5,.....13
Communality	1	1	1	1	1,.....13
Eigen values	4.7	4.2	3.0	1.0	0,.....0
% variance	32.1	28.4	23.5	6.0	0,.....0
Cum %	32.1	60.5	84.0	90.0	0,.....0

The final rotated factor matrix indicates four factors, whose Eigen values are more than 1.

The principal component extraction, had identified five factors. Contribution of the four factors in explaining variation is as indicated below;

Factor 132.1%

Factor 228.4%

Factor 3.23.5%

Factor 4.....6.0%

The accumulated percentage variance is 90% of the dimension. This means that 10% of the dimension of tourism performance is explained by other factors not identified by the model.

Table 4.10: Final rotated factor matrix for respondents.

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4
V1	-.06538	<u>.99425</u>	-.04046	.07453
V2	.01097	.03019	<u>.99862</u>	.04164
V3	-.06538	<u>.99425</u>	-.04046	.07453
V4	<u>.89628</u>	.39733	.19080	.04899
V5	-.81169	.39993	.34155	<u>.82540</u>
V6	.01097	.03019	<u>.99862</u>	.04164
V7	<u>.89628</u>	-.39733	.19080	.04899
V8	-.81169	-.39993	-.34155	<u>.75408</u>
V9	.01097	.03019	<u>.99862</u>	.04164
V10	.06538	<u>.99425</u>	.04046	.07453
V11	.41169	-.39993	-.34155	<u>.85408</u>
V12	.12184	-.19899	-.13410	-.36311
V13	<u>.89628</u>	-.39733	-.19080	.04899

The table above shows the rotated matrix of the initial factor matrix. Varimax, which is an orthogonal type (Kaiser, 1958) of rotation was performed. Varimax rotation attempts to simplify the columns of factor matrix by making all values close to either 0 or 1. This final matrix represents the terminal solution and it stands for both a pattern and a structure matrix with the coefficients representing both regression weights and correlation coefficients. The loading in a given row represents regression coefficients of factors that describe a given variable. In the varimax rotated matrix, Factor 1 is loaded heavily by variables (as underlined) 4, 7 and 13. Factor 2 is loaded heavily by variables 1, 3 and 10. Factor 3 is loaded heavily by variables 2 , 6 and 9. Factor 4 is loaded by variables 5, 8 and 11. Variable 12 was loaded below 0.3 to any of the factors. The factors are identified below.

Factor Identification.

Factor 1 : **Security**

- V4. The security situation in the country
- V7. Activities of Beach boys/ Beach operators
- V13. Political stability / governance

Factor 2 : **Infrastructure**

- V1. Road and Railways transport
- V3. Power and water infrastructure
- V10. Telecommunication services

Factor 3 : **Tourism marketing.**

- V2. Marketing of Kenya as a tourist destination
- V6. Awareness of the tourism destination.
- V9. Kenya's wildlife.

Factor 4 : **Government moratorium/incentives.**

- V5. Tax incentives in tourism trade
- V8. Cost of tourism products.
- V11. Kenya entry requirements e.g visa etc.

CHAPTER FIVE

SUMMARY AND CONCLUSIONS.

The objective of this study was to prioritise the determining factors in order of their extent of influence on the performance of the tourism industry. This was important for all stakeholders in the tourism industry in pointing to the direction that the industry should take to enhance its growth now and in the future. To achieve the stated objective, the researcher assessed the type, severity, prevalence and extent of the impact of the various factors under review to determine the starting point (by prioritisation) to revamp an industry already in a slump.

5.1. PRIORITISATION.

Through a Factor Analysis model, the following factors were identified;

Table 5.1: A Prioritisation of Factors.

Factor	Pct. of Variance	Cum Pct	Order of Priority
Security	32.1%	32.1%	No. 1
Infrastructure	28.4%	60.5%	No. 2
Tourism marketing	23.5%	84.0%	No. 3
Government moratorium/ incentives	6%	90.0%	No. 4

Source: Final Output Rotated Factor Matrix

Therefore security has got the highest percentage of explained variance (32.1%) thereby presenting the most parsimonious representation of the variables attached to the performance of the tourism industry. According to the findings therefore, it is the priority factor. Infrastructure, Marketing and Government moratorium / incentives follow in that order.

The results of factor analysis reveal that security is the most important factor that affect the tourism industry. Security embraces political stability, governance and the ability of the government of the day to deal decisively with any threat to internal security; be it politically instigated tribal clashes, robberies, mugging, attacks directed to foreigners, to create a harmonious investment atmosphere and ensure that both locals and foreigners in the country enjoy paramount and assured peace at all times. Industry players often complain of bad publicity abroad. However, the bad coverage seem justified if the potential of a favourite destination anywhere in the world is jeopardized by security problems..... it is a reality.

Infrastructure is prioritised second. It is an economic reality that good infrastructure is a catalyst of economic development. The collapse of the road network especially has been gradual and not as a result of natural phenomenon such as the El Nino weather phenomenon. A policy should be in force to review a grand strategy of total infrastructure rehabilitation through a phased out implementation programme other than haphazard programmes aided by foreign agencies.

The marketing aspect in the tourism industry is third in the priority list. It is occasioned by the fact that there is need to preserve the product, to promote what exists and not to cry foul when the customer turns away a sub-standard package. There is a general feeling by private players in the industry that the revenue remitted to the government is not ploughed back to enhance tourism development. The government should give incentives to investors in the industry, ease cumbersome visa requirements in-order to enable hoteliers charge a reasonable price. This factor of moratorium/ incentives is identified and prioritised fourthly.

5.2. Other Theoretical Findings

Factor analysis can also be useful in multiple regression and other analysis of dependence structures, where the predictors are both numerous and highly correlated. If the predictors are first factor analysed and the criterion variable is regressed on the full set of factor scores, R^2 will be identical to that obtained from the usual multiple regression analysis. Therefore the cumulated explained variance of 90 percent in table 4.9 is the same as R^2 which signifies the extent to which all the identified factors (or independent variables) explain the dimension (in this case performance of the tourism industry). The findings therefore revealed an unexplained 10 percent which form the basis for other qualitative findings.

That the collapse of the tourism industry was inevitable anyway;

- ◆ Tourism in Kenya has for years been among the top revenue earners; an industry that generates this scale of turnover deserved to be listed among the top most priorities and should command substantial re-investment budget yearly. There was failure overtime to accord the industry the priorities it so rightfully deserves.
- ◆ Who markets Kenya as a holiday destination? Is it the MTW, KTB, KWS or the individual private players? There has been failure to embrace a national concept and strategy for tourism promotions and marketing generally. Each party produces a marketing booklet, some do contradict even in basic facts about Kenya. Where are the standards?
- ◆ The merger between KLM/KQ has subsequently reduced the once National flag carrier from an International Airline to a local 'Air- matatu'. Air charters have taken over to ferry tourists to Kenya while many routes have been abandoned thus injuring the very fragile market. The motives for mergers, synergy among them, may be well intended, but the

National flag carrier should readdress the SWOT analysis.

- ◆ The Kenya National Airports Authority has failed to observe international standards especially in the arrival / departure lounges, Customs and Immigration Department with notable elements of corruption, delaying tactics e.t.c. Tourists themselves have been circumstantially forced to participate.
- ◆ Tourism as an industry exclusively rotates around human beings. The tourist therefore needs to be handled with a lot of care, love and attention. There was failure overtime to screen the performances and reactions from the industry and accord the necessary care and attention - harassment free beaches, town streets, riots, thuggery etc.
- ◆ The research also revealed that there has been failure to provide a healthy environment and a free holiday destination devoid of disease breakouts.
- ◆ There has been failure to ensure that services are provided as per the licensed hotel classifications so that the money's worth of services is ensured for tourists. Hotel establishments should carry out renovations as standards change from time to time. The research revealed that even some basic issues such as carpeting, staff uniforms, service cutlery, lifts (for three floors and above) garbage collection, hotel vehicles are ignored among many others. There should be vetting of all hotels and related investments and only serious investors should be allowed. Mushrooming of so many sub-standard discotheques and restaurants in Mombasa's North and South Coasts was noted. This has had the effect of drawing tourists away from planned tour packages as well as promoting other social vices from unsuspecting tourists. Bad image and low standards have been the implications.
- ◆ Although it is the prerogative of an individual hotel guest to decide how to spend his/her holiday, and of course it depends on information available about a destination, in many

cases it turns out not to be the situation on the ground as far as Kenya is concerned. A tourist on the south coast beach commented that she feels like a prisoner within hotel compounds (she had at first instant mistaken this researcher for another beach boy out to win at least a sale of a handicraft). In spite of the fact that a hotel must ensure free movement of its guests devoid of harassment, regulation of beach operators' activities rests with the authorities. A mere deployment of security personnel on the beaches is not suffice.

- ◆ There has been failure over time to maintain a tourism development policy. A policy should be viewed as a strategic control tool, stipulating national guidelines. The failure has promoted the practice of conservatist cheap modes by both authorities and employers devoid of the benefits of the 'experience curve.' Training, employment, promotions, settling of labour disputes should be in line with such National guidelines.
- ◆ Finally, there has been failure to determine the individual contributions of MTW, KWS, KTB and more recently the Ministry of Natural resources. Functions have overlapped yet the funding of KTB and KWS has all along been an issue. Obligations and functions of each body should be clearly defined and the following ministries which are directly connected to the tourism Industry, should join hands;
 - ◆ Finance
 - ◆ Internal security
 - ◆ Local government
 - ◆ Health
 - ◆ Transport and communications.

5.3. LIMITATIONS OF THE STUDY

One of the major limitations of this study was the reluctance of tour operators to respond to questionnaires, a fact that was demonstrated by the relatively low response rate. Another one was that the study was conducted at one point in time, May/ June/ July because the responses could have been affected by seasons; low or high peak seasons. Thirdly, the researcher did not have a chance to interview personally most of the tourists, who are the consumers of the product especially those who have visited other countries for comparison purposes; of course the results could have been much improved.

5.4. SUGGESTIONS FOR FURTHER RESEARCH

Stiff competition is a bitter reality in internationalization of any business. Kenya is facing the same scenario, due to the emerging competitors in Africa in the tourism sector. Research can be conducted in future to ascertain the dynamic comparative advantage that Kenya has in the tourism industry over other African countries. Then, such advantage (or otherwise) could be used, soon as it is established, as a paradigm to shape government policy on tourism. This would involve a survey in the selected countries covering all aspects of the industry.

Another area of research would be to test a construct such as the Level of Involvement (LI) to measure the participation or involvement of the various players in the tourism industry. Such a construct can be hypothesized and tested to measure;

- ◆ The amount of managerial and financial resources commitment by the different interested parties ,
- ◆ The degree to which this resources commitment is particular to the tourism industry.

- ◆ The success of such research would clearly spell out functions for each particular player in the tourism industry e.g. the MTW, KTB, KWS, Tour Operator associations, hotel management e.t.c.

EPILOGUE

Bungled Service a Tourism Killer

On arriving with my family at an exclusive four - star hotel on the Mombasa south coast, after a long journey, it was just as brochures had described it - the views were even more spectacular than the photographs. What was all the fuss about? The bad publicity in the UK, tabloids seemed to be a little over the top- the people were friendly and everything appeared to be fine. A good decision, I thought as we were offered a cool drink. It had been a close call between Florida and Kenya for the Easter vacations.

But wait! We were informed that our rooms were not ready, but they were being cleaned and would be ready after lunch . Our luggage was deposited at the reception. A minor hiccup, we would swim, have lunch and then unpack. A friendly pool attendant got us some sunbeds and towels after half an hour, but he did look harassed and appeared to be the only attendant looking after all the guests. We got our rooms at 4 pm with apologies, stating that the previous occupant had arranged for a late checkout and paid the daily rate. But a close check on our luggages, a doll was missing. And the kid startedI pick up the telephone to dial the reception, but Alas! It could not go through although I could hear distant conversations on the line. I guessed it could be one of the African languages. That evening we ate at the dinning - room, and one of the reasons why we had such a good deal was because the quality of food was far from gourmet as promised, “ *nouvelle cuisine* ” sized portions. They had obviously cut back on their budget.

During the night there was power failure, something that happen regularly I was told. “This is a regular problem. But we have a standby generator,” the receptionist was quick to inform me. True, the generator kicked in for a while anyway. The air conditioning had stopped when the power went off as the generator does not have sufficient capacity to

ran these, but thankfully, the fans did work. Then the generator packed up, we were plunged into darkness, the fans cut out- mayhem ensued , the kid woke up in the heat.

Bleary - eyed the next morning, we staggered into breakfast. I had thought our ears were blocked with the buzzing of mosquitoes, but we managed. My wife however seemed to have a fever and I called the reception for the hotel doctor: he was said to be on leave Out of breakfast the sun was shining, the sea glimmered, it didn't seem so bad after all. What an incredible beach - palm trees, a truly edyling setting.

That afternoon, we had booked for the shopping bus to the nearby Mombasa town. None arrived after all. "Please bear with us, the shopping bus had some mechanical problems, tomorrow everything will be okay," assured the receptionist who looked uneasy and sleepy.

At dinner, we felt fairly tipsy . The crab was inedible, and despite having ordered different styles, each meal looked indistinguishable. In disgust, we called the manager, who arrived half an hour later. He did not seem apologetic and reluctantly agreed not to charge us for the food we did not consume! In the meantime we had been overtaken by what seemed a disagreement between a waiter and another guest. It nearly became a brawl, and suddenly we also felt prey.

At night, my wife called for the room service attendant using a neighbouring room's telephone facility, but there was no reply. But suddenly it was dark- a power cut, failed air - conditioning . Oh! And the kid started again.....It was obviously not a just one- off occurrence. Florida is looking good- next year!

Partly adopted from " Management Matters" Daily Nation, 19/ 5/ 98.

UNIVERSITY OF NAIROBI
FACULTY OF
BUSINESS ADMINISTRATION

APPENDIX I





UNIVERSITY OF NAIROBI
FACULTY OF COMMERCE
MBA — PROGRAMME

LOWER KABETE CAMPUS

Telephone: 732160 Ext. 225
Telegrams: "Varsity", Nairobi
Telex: 22095 Varsity Nairobi

P.O. Box 30197
Nairobi, Kenya.

May 8, 1998

INTRODUCTORY LETTER: ANTHONY JUMA WAGOKI

MR. ANTHONY JUMA WAGOKI is a Masters student in the Faculty of Commerce, University of Nairobi. In partial fulfilment of the requirements of the Masters in Business and Administration (MBA) he is conducting a study on "THE PERFORMANCE OF THE TOURISM INDUSTRY IN KENYA: A PRIORITISATION OF DETERMINING FACTORS."

Your organization/firm has been selected to form part of this study. To this end, we kindly request your assistance in completing the questionnaire which forms an integral part of the research project. Mr. Wagoki will be responsible for the administration of the questionnaire. Any additional information you might feel necessary for this study is welcome.

The information and data required is needed for academic purposes and will be treated in strict confidence. A copy of the research project will be made available to your organization/firm upon request.

Your cooperation will be highly appreciated.

Thank you.

Yours sincerely,

J. K. LELEI
Ag. MBA Co-ordinator



INTRODUCTORY LETTER TO THE RESPONDENTS

WAGOKI, A. JUMA
C/O MBA Office
University of Nairobi
Lower Kabete Campus
P.o. Box 30197
NAIROBI

March 27, 1998

Dear Respondent,

I am a postgraduate student at the University of Nairobi. In partial fulfilment of the requirements for the award of the Master of Business and Administration (MBA) degree, I am conducting a study on "THE PERFORMANCE OF THE TOURISM INDUSTRY IN KENYA: A PRIORITISATION OF DETERMINING FACTORS"

Your organisation has therefore been selected to form part of this study. To this end, I kindly request your assistance in completing the questionnaire and providing any other relevant information necessary to this study.

The information and data provided will be used for academic purposes only and will be treated in strict confidence. A copy of the research project will be made available to your organisation upon request.

Your co- operation will be highly appreciated.

Thank faithfully,


WAGOKI, A. JUMA
MBA/STUDENT


J. MAALU
SUPERVISOR

APPENDIX II

QUESTIONNAIRE TO BE ANSWERED BY THE MINISTRY OF TOURISM & WILDLIFE.

PART A

1. In regard to the tourism Industry, what are the functions of your ministry?

.....
.....

2. What responsibilities are currently bestowed on the marketing department.?

.....
.....

3. Describe the relationship between your ministry and the following ;

(a) KWS.....

(b) KTB

(c) Ministry of Natural resources.....

4. Explain the steps the Ministry is undertaking to achieve the projected one million tourists per year by the year 2000.

.....

5. To what extent do you feel Kenya is threatened by other countries with similar attractions (e.g. wildlife) like South Africa, Tanzania, Botswana etc.?

(please explain).

.....

6. Which tourist markets in the world is Kenya most focused currently? (Give reasons)

.....

PART B.

Several factors have been identified as influencing the performance of the tourism industry in Kenya. You are requested to rate in your own opinion, the extent to which they influence tourism, by circling the most appropriated score. A score of (1) will imply least influence while a score of (5) will imply most influence.

	Least influence		Most influence		
1. Road and Railways transport	1	2	3	4	5
2. Marketing of Kenya as a tourist destination	1	2	3	4	5
3. Power and water infrastructure	1	2	3	4	5
4. Security situation in the country	1	2	3	4	5
5. Tax incentives in tourism trade	1	2	3	4	5
6. Awareness of the tourist destination	1	2	3	4	5
7. Activities of Beach operators / Beach boys	1	2	3	4	5
8. Cost of tourism products	1	2	3	4	5
9. Kenya's wildlife	1	2	3	4	5
10. Telecommunication services	1	2	3	4	5
11. Kenya entry requirements e.g. visa etc.	1	2	3	4	5
12. Diversity of attractions apart from wildlife	1	2	3	4	5
13. Political Stability / governance	1	2	3	4	5
Others (please specify)					
.....	1	2	3	4	5
.....	1	2	3	4	5

Thank you for your cooperation

WAGOKI, A. JUMA

MBA II U.O.N.

QUESTIONNAIRE FOR TOUR OPERATORS / TRAVEL

AGENTS, HOTELS / HOTEL CHAINS, KWS AND BEACH OPERATORS

PART A.

1. What is the name of your organization ?

.....

2. What is the relative size of your organization?

.....

(Give answer in terms of Number of employees; If hotel chain, Number and name of the hotels in the chain)

.....

3. In what places does your organization have offices?

Locally ()

Abroad ()

Locally & abroad ()

4. What is the main business of your organization?

.....

5. Who are your main customers?

Local ()

Foreign tourists ()

Both local and foreign tourists. ()

6. How do you acquire your customers?

Through promotional effort ()

Liaison with other organizations ()

Customers patronize on their own ()

Others (specify).....

.....

7. How would you rate your volume of trade?

Increasing () Decreasing ()

8. In answer to (7) above, which factor, would you attribute most to be affecting your performance?

9. In your own opinion, what considerations should be made in improving / sustaining the development of the tourism Industry in Kenya ?(please, List them).....

PART B

Several factors have been identified as influencing the tourism industry in Kenya, and in turn affect the performance of your operations . You are requested to rate in your own judgment, the extent to which they influence tourism trade, by circling the most appropriate score. A score of(1) will imply least influence while a score of (5) will imply most influence.

	Least influence			most influence	
1. Road and Railways transport	1	2	3	4	5
2. Marketing of Kenya as a tourist destination	1	2	3	4	5
3. Power and water infrastructure	1	2	3	4	5
4. Security situation in the country	1	2	3	4	5
5. Tax incentives in tourism trade	1	2	3	4	5
6. Awareness of the tourist destination	1	2	3	4	5
7. Activities of Beach operators / Beach boys	1	2	3	4	5
8. Cost of tourism products	1	2	3	4	5
9. Kenya's wildlife	1	2	3	4	5
10. Telecommunication services	1	2	3	4	5
11. Kenya entry requirements e.g. visa etc.	1	2	3	4	5
12. Diversity of attractions apart from wildlife	1	2	3	4	5
13. Political Stability / governance	1	2	3	4	5

Others (please specify)

.....	1	2	3	4	5
.....	1	2	3	4	5

Thank you for your cooperation

WAGOKI , A. JUMA.

MBA II U.O.N.

THIS QUESTIONNAIRE IS TO BE ANSWERED BY TOURISTS WHO HAVE SPENT A REASONABLE PORTION OF THEIR STAY OR WHOSE STAY IS ALMOST OVER.

1. What is your country of residence?
Give name.
2. Is this is your first visit ?.....
3. If this is not your first visit, how many times have you visited the country before?
.....
4. What is the nature of your visit (Tick appropriately)
 - Business ()
 - Holiday ()
 - Transit ()
 - Others (Specify) ()

5. By choosing Kenya for your visit, which are the main attractions that influenced your decision? (List them down.).....
6. Apart from Kenya, which other countries in Africa (if any), have you visited for your holidays? (Give names).....
7. In your answer in (6) above, which is the most attractive destination to visitors in your own judgment?
8. What factor (s) would you attribute to your choice in (7) above among the following ;
 - Diversified attractions ()
 - Good infrastructure facilities ()
 - Political stability viz. security ()
 - Less cumbersome entry requirements ()
 - Quality services (accommodation, banking, tours etc.) ()

Affordable holidays ()

Others (Please specify) ()

.....
.....

9. Did you enjoy your holiday in Kenya?

Yes () No. ()

10. If your answer in (9) above is 'No' what might have prevented you from enjoying yourself ?

11. Out your experience in the country, are you likely to make another holiday visit in the future?

Yes ()

No. ()

Not sure ()

12. What is your sex ? female () male ()

PART B.

Listed below are some factors which have been identified as Influencing tourism trade in Kenya. You are asked in your own opinion, the extent to which these factors influence your decision to visit Kenya, by circling the most applicable score. A score of (1) Implies least Influence, while a score of (5) Implies most Influence.

	Least influence		most influence		
1. Road and Railways transport	1	2	3	4	5
2. Marketing of Kenya as a tourist destination	1	2	3	4	5
3. Power and water infrastructure	1	2	3	4	5
4. Security situation in the country	1	2	3	4	5
5. Tax incentives in tourism trade	1	2	3	4	5
6. Awareness of the tourist destination	1	2	3	4	5

7. Activities of Beach operators / Beach boys	1	2	3	4	5
8. Cost of tourism products	1	2	3	4	5
9. Kenya's wildlife	1	2	3	4	5
10. Telecommunication services	1	2	3	4	5
11. Kenya entry requirements e.g. visa etc.	1	2	3	4	5
12. Diversity of attractions apart from wildlife	1	2	3	4	5
13. Political Stability / governance	1	2	3	4	5
14. Others (please specify)					
.....	1	2	3	4	5
.....	1	2	3	4	5

Thank you for your cooperation

WAGOKI , A. JUMA.

MBA II U.O.N

APPENDIX III

TABLE 6.1: KENYA'S INTERNATIONAL VISITOR ARRIVALS BY CONTINENT (1990 - 1996)

CONTINENT	1990	1991	1992	1993	1994	1995	1996
TOTAL AFRICA	216720	223063	212964	225145	235282	188170	195499
TOTAL AMERICA	103501	68762	66512	70316	73482	58770	61058
TOTAL ASIA	51535	55859	52617	55627	58132	46500	48311
TOTAL EUROPE	436400	456017	442299	467597	488651	390800	406008
AUSTRALIA	3420	4230	3573	3777	3947	3160	3283
NEW ZEALAND	2360	2823	2944	3112	3253	2600	2701
OTHER WORLD	464	798	591	625	653	520	540
TOTAL ARRIVALS	814400	804600	781500	826200	863400	690500	715400

Source: Central Bureau of Statistics and Ministry of Tourism and Wildlife

TABLE 6.2. : HOTEL BED- NIGHTS OCCUPIED BY ZONE (1991 - 1996)

('000)

Zone	1991	1992	1993	1994	1995	1996
Coastal Beach	3881.7	3482.5	3762.0	3071.5	3059.6	3144.9
Other Coast	269.7	181.8	196.2	185.2	166.7	70.9
Coast Hinterland	184.9	142.7	146.2	133.2	120.3	144.2
Nairobi	1277.1	954.7	1148.9	1005.4	613.7	313.0
Central	407.7	307.7	369.0	299.0	275.4	253.4
Masailand	273.2	272.4	372.7	247.8	245.3	237.1
Nyanza Basin	100.7	91.6	105.6	82.8	78.6	114.3
Western	85.3	85.0	79.9	69.9	65.5	33.0
Northern	38.3	7.4	8.3	15.2	15.9	6.3
Total Occupied	6518.6	5525.8	6188.8	5110.0	5054.8	5061.2
Total Available	11036.7	11464.5	11908.9	11908.9	11562.2	11354.5
Occupancy Rate	59.1	48.2	52.0	42.9	43.7	44.6

Source: Central Bureau of Statistics (Economic Survey and Statistical Abstract for various years).

Table 6.3: Classified Road Conditions by Surface Type (Kms)

Pavement Condition	Bitumen		Gravel		Earth		Total	
	Kms	%	Kms	%	Kms	%	Kms	%
Good	2,628.3	29.4	5,544.9	20.4	1,114.1	4.1	9,287.3	14.7
Fair	3,304.1	37.0	13,780.9	50.7	10,567.7	38.9	27,652.7	43.7
Poor	3,040.9	34.0	7,851.4	28.9	15,488.5	57.0	26,380.9	41.6
Total¹	8,936.3	100	27,181.3	100	27,172.0	100	63,289.7	100

Table 6.4 KRC Locomotive Classes, Conditions and availability 1993 /94

Locomotive Capacity	Class	Number in Fleet	Remaining Life 1995	Condition	Availability (1993/94)
Mainline	87	34	0	Poor	46.5 (53.57) ¹
	92	15	6	Fair	
	93	26	13	Fair	
	94	10	22	Fair	
Total		85			
Branchline	62	56	12	Fair	48.8 (46.7)
	71	10	2	Poor	
	72	5	8	Poor	
Total		71			
Shunting	35	5	7	Poor	
	46	22	2	poor	
	47	35	13	Fair	
Total		62			
Grand Total		218			47.2 (52.2)

Source: KRC

¹ Road length includes upgrading and improvement work and carried out during 1994 and 1995

¹ Figures in brackets represents 1990 / 91 availability

Table 6.5: Major Projects in Kenya

Project	Power (MW)	Construction Period
Kindaruma	44.0	1996- 1968
Kamburu	91.5	1970- 1974
Gitaru	115.0	1974-1978
Geothermal	45.0	1980- 1985
Masinga	40.0	1977-1991
Kiambere	144.0	1984-1988
Turkwell	106.0	1986-1981

Source: Government of Kenya, Ministry of Energy, (1992)

Table 6.6: Coverage of Water Supplies in Urban Centres, Current 1995: Units M3/day

Urban Centre	Supply	Demand	Coverage%
1. Nairobi	257,000	332, 826	77
2. Mombasa	82,600	100,256	82
3. Kisumu	16,400	42,611	38
4. Nakuru	15,000	60,982	25
5. Eldoret	36,400	29,173	125

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GOVERNANCE PRACTICES OF MFI'S IN KENYA

BY

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DECLARATION

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

Signed 

Date 17/10/2022

JOHN NG'ANG'A WAINAINA

This research project has been submitted for examination with my approval as University Supervisor.

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DEDICATION

To my dear parents, Martha Wambui Giceha and Stephen Giceha Wainaina.

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ABBREVIATIONS

NGO	=	Non-governmental Organizations
MFI	=	Microfinance Institutions
CGAP	=	Consultative Group to Assist the Poorest
SBU	=	Small Business Units
AMFI	=	Association of Microfinance Institutions (Kenya)
NGOC	=	Non-governmental Organization Council

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ABSTRACT

This study was conducted with the objective of establishing the level of governance awareness and practices of Micro Finance Institutions in Kenya. A World Bank review on corporate governance (2000) observes that major corporate failures are often the result of incompetence, fraud, and abuse of power and responsibilities and that only through an improved system of governance can organizations address these issues.

The objectives of the study are outlined below.

- (a) To establish and document the current governance practices in MFI's in Kenya.
- (b) To establish the level of awareness on effective Institutional Governance in MFI's in Kenya and to suggest guidelines for implementation.

A census of the population was taken. Majority of the MFI's were either located or headquartered in Nairobi.

The analysis of the data is presented in two stages. The first stage presents the data on the awareness of governance issues. The second presents data on actual practices of MFI's with regards to governance. The data from the completed questionnaire was summarized and presented in tables and percentages.

Out of a population of 60 MFI's presented in Kabiru's compilation of 1987, 35 MFI's responded. This gave an overall response rate of approximately 60%.

CHAPTER 1: INTRODUCTION

1.1 Background

The topic of governance has succeeded in attracting a great deal of attention because of its apparent importance to the economic health of corporations in general. Although this is generally accepted today, it has not always been the case. Not too long ago, the issue was side lined by most Western CEO's who did not see the value and importance of governance. Some CEO's even of Fortune 500 companies are still skeptical of the importance and relevance of governance (Felton et al 1996). In the past management was more involved in simply reporting positive quarterly and annual earnings to their investors. As long as this was the case investors were not too concerned with governance issues. That was in the 1980's when companies were exceeding projected targets. The mild depression in the late 1990's experienced in the stock market, save for technology stocks, of many of the worlds leading economies brought focus back on management and governance practices.

The definition of governance covers a large number of distinct economic phenomenon and as a result different definitions that basically reflect different interests in the field have been outlined

Governance has been described as the system by which business corporations are directed and controlled. The corporate structure specifies the distribution of rights and responsibilities among different participants in the corporation, such as the board, managers, shareholders and other stakeholders, and spells the rules and procedures for decision-making (World Bank Review, 2000).

Corporate governance can be narrowly defined as the relationship between a company and its shareholders but more broadly, its relationship to society (Financial Times 1997).

The trend in corporate governance is shifting from trading to owning hence the broad definition that defines the relationship between owners and managers. The relationship between owners and managers continues to provide for much discussion, as the issue of corporate monitoring and accountability are critically debated. Shareholders have become more vigilant and are likely to be more socially responsible as it is generally harder for a large group of active owners to agree on improper or illegal practices.

Ownership based governance is likely to reduce the corrupting influence of unaccountable power on individuals. Transforming corporations into more democratic institutions, institutional investors are quick to highlight any corrupt activities and take correcting measures.

Evolution of Governance

Governance systems have evolved over centuries, often in response to corporate failures or systemic crises (World Bank 1999). The growing power and independence of the boards in the United States represents a reversal to a trend that dates back to the early years of this century.

At J P Morgan one of the oldest and largest financial services company in the US, where board member were unusually powerful in the early 1900, a seminal event occurred where 30 company board members resigned in a single day. They had for a while

controlled the decision making process and had left little management powers to the CEO. This is one of the earliest recorded conflicts between management and the board (Hawkins, 1997).

The relationship between management and the board was defined even further in the 1950's, when an economic boom drove a wave of investors into stocks. The increasing number of shareholders pressured for a sense of democracy in decision-making. In the US all this was done without much regulation by the federal government and a period of corporate raiders energized and flourished in the 1980's turning public opinion against the power of boards. Management led by CEO's believed that they had won the battle of governance.

This however did not last for too long and in 1992 the Securities Exchange Commission (SEC) made it easier through regulation for investors to coordinate on governance issues.

Micro Finance Institutions

Micro finance institutions are set up in order to finance small and micro-enterprises, which are excluded from traditional banking practices. Micro finance is the provision of financial services to low income, poor and very poor self-employed individuals. The main objective of MFI's is to alleviate poverty by providing these groups of people with credit facilities that are not available to them through conventional banking institutions.

NGO's have been accused in Kenya of misappropriation of donor funds and questions have been raised as to whether the funds that these NGO's receive are used for the

designated purposes. Some have even suggested that the amount of donor funds received by the NGO sector far surpass the Kenyan budget.

Microfinance is now at the stage of transforming to self-sustaining businesses. Sustainability of MFI's i.e. gradually moving away from donor funds towards sustainable financial and operational self-sufficiency, has led to criticism that the initial intentions of providing credit to the credit unworthy, who constitute the greater percentage of the population have long since been abandoned. Many believe that this trend towards commercialization is coupled with movement away from serving the very poor. While organizations search for financial and operational viability, majority of these institutions are increasingly going up market. (MicroBanking Bulletin, 1999)

Contrary to general opinion, there have been cases of successful transformation of MFI's transforming from donor based to commercially sustainable institutions while still maintaining the primary focus of providing credit to low income, self employed individuals e.g. Compartamos in Mexico founded by Gente Nueva, a large Mexican NGO has achieved sustainability while granting average loans of less than \$70 (The Micro Banking bulletin, 1999)

Commercialization requires that MFI's re-evaluate their financial and operational reporting practices. The World Bank through organizations such as the Consultative Group to Assist the Poorest (CGAP) has championed for a standard approach towards financial reporting (Campion & Frankiewicz, 1999).

Commercialization will ensure long-term sustainability of MFI's and to remain competitive, MFI's have either to increase the average loan sizes by growing with customers or develop new large-loan products for the new markets

To achieve large-scale outreach with a financial product designed for the very poor people some MFI's globally have combined with commercial organizations such as Credit Unions and small business units (SBU's) of large banks. These mergers have brought to light shortcomings in the micro finance industry.

According to the Association of MFI's (AMFI) Exhibition in Kenya, June 2001, MFI's are faced with some of the following challenges; economies of scope, corporate structure problems, lack of financing brought about by the decline in funds from donor communities and donor agency requirements.

Of major concern to this study is the lack of a well-designed corporate structure in most NGO's and specifically the microfinance sector. According to the MicroFinance Network publication on the current governance practices of MFIs (October 1998), donor agencies are concerned with lack of corporate structures that are required as MFI's move towards commercialization.

MFI's and Governance

Donors are increasingly getting weary of the lack of continuity in projects that are initiated in the developing world. In Africa, NGO's are often accused of management practices that lack accountability, control and planning (Oster, S.M 1995).

According to the Micro Enterprises Best Practices publication on "Principles and Practices of MicroFinance Governance" (1998), governance is the process by which a board of directors, through management, guides an institution in fulfilling its corporate mission and protects the institution's assets over time. Boards are established to provide oversight and give direction to the managers of an institution. In the case of for-profit organizations, the board of directors carries out this function on the behalf of a third party, referred to as shareholders. In non-profit organizations ownership is not easily identified. Herein lies the dilemma that MFI's are faced with as they transform from non-profit donor funded organizations to commercialized self-sustainable institutions.

Fundamental to good governance is the ability of an individual director to work in partnership to accomplish an effective balance between strategic and operational responsibilities.

According to The Micro Banking Bulletin (1999) effective corporate governance and reliable industry information are closely linked in the micro finance industry for a number of reasons:

First, when MFI's increase their assets, directors must challenge the capability of management to maintain high standards of performance.

Second, very careful oversights are now required for the MFI industry that is slowly becoming regulated. In Kenya, the Central Bank is closely monitoring developments in this area specially where MFI's are taking customer deposits.

Third, increasingly competitive markets tend to squeeze financial margins and require vigilant monitoring of operational efficiency, profitability, portfolio quality, market share and client retention.

Fourth, as MFI's shift to commercial sources of capital, only through effective MFI's governance can provide the level of accountability required by investors and lenders.

Good governance is concerned with holding the balance between economic and social goals and between individuals and communal goals. A clear governance framework needs to be formulated and implemented to encourage the efficient use of resources and equally require accountability (A Framework for Implementation - World Bank)

1.2 Problem Statement

As MFI's transform from donor supported organizations to financially and operationally sustainable ones, the need to redefine and realign their internal structures has become increasingly important.

MFI's have had to increase the size of the operations by either increasing the average loan size and client base or by developing new, large-loan products for new markets (MicroBanking Bulletin, 1999).

According to Kinyanjui (1985), the primary concern for NGO's, including MFI's has been addressing the issue of transformation brought about by factors such as donor fatigue. Oster (1995) observes that lack of accountability; control and planning have continued to be areas of concern for donor agencies when dealing with NGO's.

A World Bank review on corporate governance (2000) observes that major corporate failures are often the result of incompetence, fraud, and abuse of power and responsibilities and that only through an improved system of governance can organizations address these issues.

The Central Bank of Kenya has initiated efforts towards the regulation of MFI's. As MFI's transform into self-sustaining organizations, there is a growing concern about the sector's ability to address issues on control and accountability, hence the need for a regulating body. This is because the ownership structure of NGO's and in specific MFI's is not well defined.

Transformation into a self-sustaining organization will mean the introduction of investors as major stakeholders in the industry. According to Anita Campion (1998), the participation of pure capitalist investors in the MFI industry will increase the need for control and accountability.

A clear framework for institutional governance for MFI's needs to be formulated and implemented so as to address the issue of control and accountability.

Not much research on institutional governance in MFI's in Kenya has been carried out. According to Ngethe (1991) and Kinyanjui (1985) very limited researches on NGO's in Kenya have been carried out. The need to research on institutional governance and documentation of the findings is growing stronger as the issues of control and accountability take center stage.

The purpose of this study is to establish the level of awareness and understanding of institutional governance issues in the MFI sector. Through investigation and documentation of current governance systems within MFI's in Kenya, the study will highlight critical issues and suggest guidelines for implementation based on best practices of effective institutional governance in the MFI sector.

The study will attempt to answer the following critical questions; what is the nature of governance of MFI's in Kenya and how do they compare to MFI Best Practices and are MFI's in Kenya aware of the importance of effective governance practices?

1.3 Objectives of the Study

From the above critical questions, the following objectives for the research have been identified:

(a) To establish and document the current governance practices in MFI's in Kenya.

(b) To establish the level of awareness on effective Institutional Governance in MFI's in Kenya.

1.4 Significance of the Study

MFI's are faced with the undoubtedly difficult task of providing relatively poor clients with credit and doing so while maintaining sustainable financial operations. An important challenge facing micro finance institutions is to create awareness of effective institutional governance (Micro Banking Bulletin, 1999).

The current governance practices observed in the sector cannot support the inclusion of new stakeholders such as investors. As pointed out earlier, in most MFI's, the founder, CEO and Chair of the board is one and the same person. This is an anomaly that may hinder progress in the MFI sector.

The study will seek to point out current governance practices in MFI's in Kenya. By comparing governance practices in Kenya with suggested best practices for MFI's, the researcher will highlight and document the differences.

This will contribute to research in this field and future researchers and consultants may use the research to advise interested parties on effective governance.

MFI's will also benefit from the research by using best practices guidelines that will be highlighted in the study, while regulatory bodies can use the results from the study to improve on the framework for regulation.

Governance practices have recently been a major topic of discussion. According to a survey carried out by (Felton et al, 1996) good governance practices really makes a difference in stock prices and investors are willing to pay a premium for organizations that are well governed. Such is the value attached to the issue of corporate governance that investors are willing to pay 11% more for the shares of well governed organizations.

2.1 Governance

According to a survey (Hawkins, 1997) that involved CEO's and top managers of leading organizations in the US, three reasons were given to explain why investors care about corporate governance; better performance hence a better market price for the stocks, reduction in risk for well-governed organizations and the fact that because it is a current topic in management, awareness of its importance has been created.

According to the World Bank corporate governance problems grows out of the separation of ownership and control and of corporate outsiders and insiders. In the absence of the protections that good governance supplies, asymmetries of information and difficulties in monitoring mean that capital providers who lack control over the corporation will find it risky and costly to protect themselves from the opportunistic behavior of managers or controlling shareholders.

Without meaningful protection for external capital providers, those who control the corporation can use their position to misappropriate economic benefits, often at the expense of the long-term performance and value of the enterprise. Where poor corporate governance is the norm, the problem extends beyond underperformance in the corporate sector to greater vulnerability of the financial system.

Most investors are interested in long-term returns. Institutional investors rely on strong, independent boards to create shareholder value. As major shareholders of their organizations, CEO's are charged with the responsibility of ensuring that they have well governed organizations as this would benefit them. A CEO may use a weak board as a rubber stamp. This is a major problem in NGO's where you have the founder of the organization as CEO and the Chairman of the Board.

There are three approaches that describe a CEO's perception of the board (Felton, et al 1995):

Advisory role of the board: One of the critical roles for the board is in helping management to identify and resolve strategy and performance issues. The CEO acts as the go between the board and senior management and advises the board on management issues

Shareholder participation through board members: Effective shareholder communication plays such an essential role in decision-making. The CEO can obtain valuable information for the formulation and implementation of strategy.

As a means to improving overall performance of the organization: Independent outsiders add value to a company. By evaluating the performance of senior management, the board ensures that the standard of performance is high.

Diane Grady (1999) suggests that problems with boards arise from three areas:

Processes: According to Grady, the focus of traditional board processes is in reviewing history and not in creating the future. The cycle of monthly meetings gives managers little time to prepare carefully considered strategy papers while structured agendas leave little room to consider medium or long-term issues.

People: Most boards include both executive and non-executive directors, but they are almost always cut from the same cloth i.e. with similar backgrounds.

Culture: Boards have traditional had an arm's-length relationship with management. This compliance-oriented relationship is no longer adequate in a dynamic business environment.

A Corporate Governance Framework: The Internal and External Architecture

The World Bank proposes a corporate governance framework that reflects an inter-play between internal incentives, which define the relationship among the key players in the corporation and external forces (such as policy, legal, regulatory and market) that govern the behavior and performance of the firm.

The internal architecture defines the relationship among key players in the corporation.

The relationship between managers and shareholders narrowly describes the set of internal arrangements within a corporation. The shareholders may be public or private, concentrated or dispersed. At the center, the World Bank suggests is the board of directors. Its overriding responsibility is to ensure the long-term viability of the firm and to provide oversight to management. The board is answerable to shareholders, and in some systems, to employees and creditors.

The World Bank further suggests that the governance problems that need to be addressed vary according to the ownership structure in the corporate sector.

At one end of the spectrum is the publicly traded company with widely dispersed shareholdings whose main challenge is for outside shareholders to control the performance of managers through the selection of directors. At the other end of the spectrum is the closely held company with a controlling shareholder where the manager acts at the dictate of the controlling shareholder.

Here the primary governance issue is how outside shareholders can prevent the controlling shareholder from extracting excess benefits through self-dealing or disregard of minority shareholders' economic rights. Additional governance mechanisms may include voting rights, allowing outsiders representation on the board, and taking rules.

The external forces provide a level playing field by keeping players in line. External laws, rules, and institutions that provide a level, competitive playing field and discipline the behavior of insiders, whether managers or shareholders strengthen the internal factors for corporate governance mentioned above. Notable among these are the legal framework for competition policy, the legal machinery for enforcing shareholders' rights, systems for accounting and auditing.

2.2 Microfinance Institutions

According to the World Bank Report (1997), Kenya was ranked as the 20th poorest country in the world. The level of unemployment in Kenya is about 35%. 80% of the working force is employed in the agricultural sector that contributes only 25% of the gross domestic product (GDP). The real level of unemployment (and under employment) is therefore much higher.

With high levels of unemployment, the poor (and the very poor) have absolutely no access to credit through the formal financial system in Kenya. The problem is further compounded as majority of the employed are considered credit unworthy.

The current situation in Kenya has led to the proliferation of NGO programs to promote microfinance development (Aleke Dondo, 1999). According to Aleke, there exist 86 organizations providing services to the poor in Kenya

Microfinance Institutions have realized that the changing demands of the donor communities will create a need for MFI's to address the issue of corporate governance (The MicroBanking Bulletin, 2000). Strategic transformation from a donor funded non-profit organization to a commercialized is one of the conditions for receiving funds. This according to Maria Otero (1999) creates the need to address the issues of transparent reporting, industry standards and the oversight responsibilities of the board. These as earlier mentioned are some of the issues that AMFI highlighted for Kenyan MFI's.

Like most organizations, MFI's rely on external auditors for verification of their financial reports but because of the lack of familiarity with micro finance Maria Otero, suggests that directors should not rely entirely on such reports but on models established by organizations within the MFI network.

Few microfinance institutions consider going down market i.e. serving the poorer clients, as good business. Stack and Thys (MicroBanking Bulletin, 2000) suggest that most MFI's broaden their services to reach a better-off clientele, or as they say, financial viability must be compromised to reach the poorest.

Recent Trends in Reaching the Poorest

The recent trend in Microfinance is towards commercialization so as to ensure long-term sustainability. Unfortunately, this trend is coupled with the movement away from serving the poor and the very poor.

To achieve large-scale outreach with a financial product designed for the very poor people, some MFI's have partnered with credit unions in several countries e.g. Freedom from Hunger, a US-based MFI. The following reasons given by Freedom for Hunger explain their collaboration with credit unions:

Outreach Credit unions supply more lending and savings services than any other type of financial institution with the exception of banks. They are widespread, particularly in rural areas, and often have regional and national credit union networks that can promote efficient product dissemination.

Mission and Ownership: Credit unions were created to improve the welfare of their members and communities through financial services. As member-owned institutions, credit unions maintain a commitment to both social and financial goals.

Financing: They have the capability to finance new products from internally generated resources (savings). The savings-first approach of the credit unions is an attractive long-term, self-financing feature.

Multiple Products: Credit unions offer multiple types of loan products. This product menu mitigates against the risk of portfolio concentration that occurs with MFI's that offer only one or two types of loans. Also, as a credit union client, a poor member can graduate from a group-based product to other credit union products when and as the need arises.

Economies of scope: Credit unions are in a good position to deliver a poverty-focused sustainable product because back office and overhead costs can be shared with other financial services.

2.3 Critical Issues that Lead to the Need for Governance

Eisabeth Ryhne in a critical analysis of Dave Richardson's article (MicroBanking Bulletin - Issue No. 5, 2000) agrees that while MFI's do not have the perfect solution to ownership and governance credit unions have their weaknesses too somewhat similar to those in the MFI industry and these are discussed below:

Self-governing financial societies, especially smaller ones, are subject to capture by influential or highly motivated members who direct policies towards their interests. Borrower domination led credit union across the world to adopt anti-saver policies for years, thereby limiting their growth. Capture by a small group of borrowers has caused many a credit union simply to collapse from what in another type of financial institution would be regarded as insider lending.

Self-governance among multiple small institutions is inefficient. While creating independent governing structures at the grassroots level does seem to be a useful approach for developing financial services in areas banks can't reach, it has turned out to be difficult, labor intensive and costly to bring lots of tiny institutions to the point where they can be reliable suppliers of quality services. There seem to be economies of scale for management structures: one managerial structure with many outlets may be more efficient than many separate superstructures.

When credit unions grow to become major suppliers the essence of self-governance begins to disappear making credit unions little different from other types of financial

institutions. For the clients of large-scale credit unions, being a member involves little more than paying an initial membership contribution and checking an annual ballot.

For large institutions, competent and professional management matters more than the particular type of ownership and governance.

Corporate governance principles are intended to provide a framework for the management and accountability of key decision-making bodies.

Governance is in the essence the organizational arrangements that have been put in place to provide an appropriate set of check and balances on the stewards of an organization. (Candice Dott, 2002). The quality of leadership is therefore critical in establishing good governance practices.

To provide leadership for effective governance, the board must be aware of its responsibilities that must be distinguished from that of the management, ensure that the company has the highest caliber of an executive team and that certain senior managers are being groomed for the CEO position (Caroline Jebet, 2001)

The objective is to ensure that those to whom the stakeholders entrust the direction and success of the organizations act in the best interest of these stakeholders. Its about leadership, responsibility and accountability and transparency. Transparency refers to both the degrees of openness of the organization and the extent of disclosure of the extent of disclosure of the interactions that could influence decisions. (Hellman & Kaufmann, 2002).

Most NGO's in developing countries suffer from a lack of separation of ownership and control and extent of dispersion. Berle and Means (1932) observed that most US non-financial organizations separated ownership from control. By control they meant that the individual or group within the company, who have the power to select the board or to dictate the policy of a corporation.

In Africa NGO's are often accused of management practices that lack accountability, control and planning (Oster, 1995). In most MFI's, the CEO and the board Chair is one and the same person and the focus for most MFI's is therefore primarily but not limited to the CEO and the Board.

Organizations that want their boards to take more initiative must clear many obstacles some of these are that a board should offer support and avoid making the initiative until management has clearly failed. The issue of compensation, perceptions of independence and that the CEO and top management fear of meddling by board members are also some of the other obstacles (Diane Grady, 1999).

The clear framework that defines the roles for owners and managers is critical for effective governance. Effective governance can only be reached by creating a successful owner-employee contract to share wealth (Candice Dott, 2002)

2.4 Current Governance Practices of MFI's

As mentioned, the most common and current change program for MFI's is transformation from non-profit to profit making organizations (Campion & Frankiewicz, 1999). For these MFI's to survive the need for change they have had to broaden their client base and increase interest rates and in the process there has been a strong move towards regulation of the industry. MFI's with well-governed boards stand a better chance to successfully transforming to a profit making organization.

Failure by MFI's to define the role of the board can lead to donors stepping in and taking charge. Such was the case for a US registered MFI that operates in 5 African countries. The CEO, Chairman of the Board and Executive Director was one and the same person. The Board now under direct control of the consortium of donors felt that there was need to restructure the roles and functions within the organization leading to the creation a separate organized incorporated as a company limited by guarantee and the ultimate separation of the position of the Chief Executive Officer and the Board Chair.

There are many persuasive reasons for splitting the positions of the CEO; it avoids concentrating of power in one person, provides for different opinions, it creates a balance between strategic and operational activities, the Chair acts as an intermediary between the CEO and outside directors and it avoids the risk that a CEO would preside over discussion of his or her own future.

Anita Campion, in her survey of MD and Board Member responses as to who sets the agenda in the board meetings of MFI, revealed that Board Members believe that MDs in MFI's dictate the term and agenda for board meetings (Campion, 1998).

The need to separate the role of the Chair and the CEO is one of the major governance challenges for MFI's.

From the responses below, most MD's believe that the agenda for most meetings is set by both the MD and board members while most Board Members believe that agendas to meetings are set by the MD alone.

Board Agenda

Who Creates the Agenda?	Managing Director	Board of Directors
Chair & Managing Director	7	4
Managing Director Alone	3	5
Managing Director & Secretary to the board	1	0
Secretary to the Board	1	1
Chair Alone	0	1
Chair and Secretary to the board	0	1

2.5 Best Governance Practices in MFI's

The vast majority of MFI's operate as NGOs and in the case of NGOs no owners exist. Donors provide capital as grants and or concessionary loans. Because of the fact that no owners exist in NGO's, there are certain questions that come to mind (Micro Enterprise Best Practices 1998); to who do boards act as a fiduciary and to whom is the board accountable?

In examining board membership, one should consider the following: the skills and characteristics of the directors the directors' understanding and commitment to the dual mission of microfinance, the directors' ability and willingness to fulfill their duties of care and loyalty and the development of the board.

Transforming MFI's can benefit from the following guidelines (Campion & Frankiewicz -MFN Occasional Paper No. 3):

Recommitting the Mission: MFI's that are transforming into profit making institutions have been generally accused of neglecting their social mission of providing credit to below average income earners. The board's responsibility is to ensure that the appropriate institutional mission continues during and after the transformation.

Strategic Planning: A clear understanding of the benefits of the transformation will lead to a well thought out strategic plan that goes beyond the simply but important conceptualization process to includes strategic thinking and implementation. The board acts as an advisor to the process. This strengthens the case for careful selection of qualified board members.

Regulatory Relationships: Prof. Anyang Nyongo, in a commentary "How bad Governance Strangles Business", (The Sunday Nation - June 10, 2001) suggests that the

government through its corrupt practices has led to the collapse of business. With this in consideration, MFI's should strive to forge a strong relationship with regulatory bodies in Kenya.

Identifying Investors: The board should also be involved in deciding which investors are beneficial to the strategic objectives of their MFI.

Relationship between the Old and New Institution: This is without a doubt the most challenging management responsibility. The board should lend a hand in steering the MFI away from possible conflict between the old and resultant new institution.

Models of good governance may differ as the internal and external features that come together reflect specific market structures, legal systems, traditions, regulations, cultural and societal values (World Bank, 1999).

Below Felton et al (1995) set out a model for good governance.

Establish leadership independent of Management	Ensure Optimal Board Composition	Structure Meetings to Maximize Board Effectiveness	Evaluate Board Effectiveness & Make Changes as Needed	Communicate with Stakeholders
Board Governance Committee is charged with all board Responsibilities	Board Membership criteria and director job description are clear and documented	Meetings are Long enough for Substantive work	Formal confidential performance-oriented peer review system for individual directors	Board governance processes are clearly communicated to shareholders and other stakeholders through the annual report, letters, or other channels
Only outside directors serve on key committees <ul style="list-style-type: none"> • Audit • Board Governance • Compensation 	Vast majority of directors should be outsiders enough to staff and lead key committees.	Outsider Director-only meetings are frequent and routine	Many opportunities to create director turnover	

Adopted from: Felton, Alec. Witt (1995) - Building a Stronger Board

Implications of Best Practices

According to the Gary Woller (MicroBanking Bulletin - Issue 5) the implication of best practices is that to achieve financial self-sufficiency high interest rates have been charged at an adequate spread over costs and scale up. Although interest rate policies have been successful the long-term viability of these will lead to the alienation of the very poor that are not considered good business.

This is especially important for poverty lenders concerned about both depth and breadth of outreach. Woller further suggests that charging very high interest rates may reduce the demand for loans among the very poor whose enterprises do not yield a rate of return exceeding the interest rate. This is the primary challenge for MFI's as they move towards self-sufficiency.

3:1 Scope of the Study

The study covers governance within MFI's registered with the NGOC Coordinating board. The study is an exploratory one as the researcher is not aware of any related studies on MFI's in Kenya. The topic of governance has only recently emerged as a major area of research. Previous research on MFI's in Kenya have centered on the topic of strategic management and not on governance practices. The investigation has sought the responses from MD (CEO or Executive Directors). This chapter reports on the population, data collection and analysis methods used in the study.

3:2 The Population

The population in this study consisted of all MFI's registered by the NGOC and detailed in the most current registry of MFI's in Kenya compiled by C. Kabiru (ARIFU) dating back to October 1997. The registry contains 60 MFI's listed alphabetically with the following details outlined: Name of Institution, Acronym, Location, Address and Telephone Contacts, Contact Person, Type of Activities, Sources of Funds, Projects and Notes/Summary Section.

As there were only 60 MFI's in the current registry a census of the population was done.

3:3 Data Collection

This is an exploratory study and relies on primary data collected through the use of a structured questionnaire. The questionnaire was adopted from a survey for current governance practices of MFI's (Campion A, 1998). Modifications have been made to ensure that all aspects of MFI governance in Kenya are captured. Open-ended and closed questions have been used in the questionnaires that are intended to capture both quantitative and qualitative data.

The questionnaire is divided into 9 sections that cover the following areas:

- i. Institutional Information
- ii. Organizational structure and Objectives
- iii. Governance awareness
- iv. Board Composition
- v. Board Structure
- vi. Board Meetings
- vii. Role of the Board
- viii. Institutional Performance
- ix. Conflict and Resolution

The study was carried between the months of July and October 2001. For all MFI's in Nairobi i.e. 90% of all MFI's, the "*drop and pick*" method was used to collect data. For all MFI's outside of Nairobi, a letter of introduction detailing the objectives of the research and a questionnaire was sent.

3:4 Data Analysis

The Data collected was analyzed by the use of descriptive statistics. The responses were edited to ascertain their completeness and consistency. Tabulation and classification through coding was done. Coding facilitated basic statistical and descriptive analysis such as frequency distribution, means, modes and percentages. The analysis was carried out using the SPSS-X statistical package

Data was then summarized and presented in the form of tables. Descriptive statistics were used to analyze all closed ended questions while responses from open-ended questions were listed and proportions obtained appropriately.

4:1 Introduction

In this chapter, the data from the completed questionnaire was summarized and presented in tables and percentages. It contains 8 sections of discussion that are consistent with the objectives of the study; to establish and document the current governance practices and compare these with MFI best practices.

4:2 Overview of the Data Collected and Analyzed

Out of a population of 60 MFI's presented in Kabiru's compilation of 1987, 35 MFI's responded. This gave an overall response rate of approximately 60%. Of the 35 that responded 27 of these characterized themselves as Non-Profit Organizations.

NGO's receive millions of dollars every year from donor agencies thus there is a need for a clear framework of effective governance (WB Review, 2000). MFI active loan portfolio (\$) is represented in the institutional data collected and presented below in table 4.1. 76% of the respondents had an active loan portfolio of over \$50,000.

Table 4.1 Active Portfolio

Active Loan Portfolio (\$)	Number of Respondents	%
Up to 50,000	12	34%
50,001 - 100,000	14	40%
100,001 and above	9	26%
TOTAL	35	100%

Table 4.2 Client Population

Client Population	Number of Respondents	%
Up to 5,000	29	82%
5,001 - 10,000	4	12%
10,001 and above	2	6%
TOTAL	35	100%

Table 4.3 below (Organizational Structure) presents a summary of the respondents' organizational structure. According to the WB Review (2000), the corporate structure specifies the distribution of rights and responsibilities and the importance of governance issues. Majority of the respondents as indicated above characterize themselves as Non-profit organization and their governance practices will indicate whether they are open to abuse hence the need to be accountable for donor funds. Of the remaining 8 that indicated "Other", one was incorporated as a company limited by guarantee. The remaining 7 were religiously affiliated NGO's.

Table 4.3 Organizational Structure

ORGANIZATIONAL STRUCTURE	NUMBER OF RESPONDENTS	%
Non-Profit Organization	27	77%
Other	8	23%
TOTAL	35	100 %

4.3 Organizational Objectives

Organizational objectives determine the overall direction of an organization. Responses to this section helps establish the organizations perception of themselves and determine their reason of existence as a response to the changing demands of donors i.e. strategic transformation from a donor funded non-profit organization to a commercialized one (The MicroBanking Bulletin, 2000).

Table 4.4 Financial Services Objectives

FINANCIAL SERVICES OBJECTIVES	NUMBER OF RESPONDENTS	%
Financial self-sufficiency	12	34%
Operational self-sufficiency	8	23%
Ability to cover Cost with Donor and other Income	15	43%
TOTAL	35	100%

From table 4.4 above, 34% of the respondents indicated that financial self-sufficiency was the most important financial services objective. 23% indicated operational self-sufficiency as the most important financial services objective. The remaining 15 (43%) respondents consider covering costs using donor and other funds as the primary financial services objective.

All religiously affiliated MFI's (7 respondents) and the remaining 8 that indicated that their primary financial objective was the ability was to cover costs were MFI's that had an active loan portfolio of between \$50, 000 and \$100,000.

This suggests that a large number of the respondents still do not adhere to calls by donor agencies for strategic transformation into self-sufficient organizations.

Table 4.5 Non-Financial Services Objectives

NON-FINANCIAL SERVICES OBJECTIVES	NUMBER OF RESPONDENTS	%
Poverty Alleviation	18	51%
Micro Enterprise Development	10	29%
Job Creation	3	9%
Maximum Access to Financial Services	4	11%
TOTAL	35	100%

From table 4.5 above, over 50% of the respondents indicated that poverty alleviation was the primary non-financial services objective. Only 11% of the respondent, indicated that maximum access to financial services was the primary non-financial services objective.

This further highlights the dilemma that MFI's are faced with i.e. the dual responsibility of providing access to credit and the alleviation of poverty while transforming towards self-sufficiency (MicroBanking Bulletin, 1999).

4. 4 Governance Practices of MFI's in Kenya

Donors are today focusing on MFI best governance practices. Publications in the field are used as industry standards and guide the MFI's in there strive towards sustainability. Governance practice of MFI's in Kenya are detailed below and compared with those of MFI's best practices.

4.4.1 Board Member Skills

In examining boards one should consider the skills and characteristics of the Directors (ME Best Practices, Otero 1998). The skills should be diverse and comprehensive.

Table 4.6 Board Member Skills

BOARD MEMBER SKILLS	NUMBER OF RESPONDENTS	%
Legal	22	63%
Financial	35	100%
Public Relations	31	86%
Auditing/Accounting	9	26%
Micro Enterprise Expertise	14	40%

Financial skills were present in all the respondent's boards but only 40% of the boards indicated that they had micro enterprise skills. MFI's with a client population of 5,000 that included all MFI's with over \$100,000 in active loan portfolio indicated that micro enterprise expertise was represented in their boards but only 9 of the 14 MFI's with active loan portfolios of between \$50,000 and \$100,000 indicated that they had micro enterprise expertise on their boards.

The lack of micro enterprise skills in these MFI's may suggest some inconsistency in the data and further research in this area may be needed, as this is unexpected.

Oster (1995) observes that lack of accountability; control and planning have continued to be areas of concern for donor agencies when dealing with NGO's. Donors continue to be weary of the lack of accountability and responsibility of MFI's especially in developing countries. Only 26% of MFI's i.e. 9 respondents in the study indicated that they had accounting and auditing skills. Of these 9 respondents 6 had an active loan portfolio of over \$100,000 while 3 MFI's with between \$50,000 and \$10,000. The remaining 26 respondents indicated that they did not have accounting and or auditing skills represented on the board.

This is consistent with donor expectations and suggests that the lack of accountability may be wide spread within the industry.

4.4.2 Length of Terms of the Chair

Corporate failure is often attributed to abuse of power (WB Review 2000) and only through an improved system of governance can organizations address the issue of abuse of power. The likelihood of abuse of power can be reduced through limiting the length of the term of the chair.

From table 4.7 below, 26% of the respondents have length terms of the Chair greater than 37 months (3 years) while another 26% do not have set terms. This may suggest at least 26% of MFI's i.e. 9 respondents in Kenya are exposed to the likelihood of abuse of power, as the length of the chair is not defined. 4 of the 9 MFI's had between \$50,000

and \$100,000 in active loan portfolio suggesting that the bulk of funds received could easily be exposed to abuse.

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In most MFI's in Kenya the Board Chair is also the executive officer, further exposing the MFI's to the abuse of power.

Table 4.7 Length of Terms of Chair

LENGTH OF TERMS OF CHAIR	NUMBER OF RESPONDENTS	%
1 to 12 Months	13	37%
13 to 24 Months	1	3%
24 to 36 Months	3	8%
37 + Months	9	26%
No Set Terms	9	26%
TOTAL	35	100%

4.4.3 Frequency of Meetings

Diane Grady (1999) suggests that the traditional cycle of monthly meetings gives managers little time to prepare carefully considered strategy papers while structured agendas leave little room to consider medium or long-term issues.

Table 4.8 below presents the frequency of meeting per year. 40% of the respondents indicate that board meetings occur at most 4 times a year. This as opposed to monthly meetings may give those boards ample time to formulate long-term strategic objectives.

Table 4.8 Frequency of Meetings

No. of MEETINGS	NUMBER OF RESPONDENTS	%
Twice A Year	13	37%
Quarterly	1	3%
Other	3	8%
No Response	19	52%
TOTAL	35	100%

However, over 50% (i.e. 19 respondents) of the MFI's did not respond to the issue of frequency of meetings and the findings may therefore be incomplete.

4.4.4 Board Agenda

According to Anita Campion's survey on who sets the agenda in board meetings (Campion 1998), Board Members believe that MDs in MFI's dictate both the terms and agenda for board meetings. This has been noted as one of the major governance challenges for MFI's and suggests that there is need to separate the role of the chair from that of the Chief Executive Officer.

From table 4.9 below, 51% of the respondents believe that the Board Agenda is set by the Chair and 26% by the MD. Of the 51% i.e. 18 respondents, 6 of the 9 MFI's with over \$100,000 in active loan portfolio indicated that the Chair of the board dictated the board agenda.

However as earlier mentioned, in some MFI's, the Board Chair and MD is one and the same person creating the need for a clear framework that outlines the separation of the positions.

At Pride Management Services Ltd. (a spin off of Pride Africa and registered as a Company Limited by Guarantee, 2001) the role of the Chair and that of the MD was separated creating a clear distinction between the two and protecting the organization from possible abuse of power

Table 4.9 Board Agenda

WHO CREATES THE AGENDA	NUMBER OF RESPONDENTS	%
Chair	18	51%
MD	9	26%
MD with the Board	8	23%
TOTAL	35	100%

4.4.5 Nature of Organization's Board

According to Campion and Frankiewicz (Micro Finance Occasional Paper No. 3), transforming MFI's can benefit through a clear well thought out strategic plan that goes beyond the simple but important conceptualization process to include strategic thinking and implementation.

Table 4.10 Nature of Organization's Board

NATURE OF ORGANIZATION'S BOARD	NUMBER OF RESPONDENTS	%
Monitor Organizational Activities	4	11%
Strategic Planning and Policy Decisions	18	52%
Many Levels Including Operational Decisions	13	37%
TOTAL	35	100%

From table 4.10 above, over 50% i.e. 18 of the 35 respondents indicated that Strategic Planning and Policy Decision was the nature of their organizations board. This included all of the MFI's with over \$100,000 in active loan portfolio and all MFI's with a client population of over 5,000.

4.4.6 Assessment of MD's and the Boards Performance

According to Hawkins (1997), most investors are interested in long-term returns and among one of the major reasons given to explain why investors care about governance is that better performance by an organization leads to better stock prices (Felton et al, 1996). The MD's performance is therefore of great interest to both the board and the investors.

Table 4.11 Assessment of MD's Performance

ASSESSMENT OF MD's PERFORMANCE	NUMBER OF RESPONDENTS	%
Very Important	18	51%
Important	9	26%
Somewhat Important	8	23%
TOTAL	35	100%

From table 4.11 above, over 51% of the respondents consider the assessment of an MD's performance as very important to an organizations overall performance. According to Felton et al (1995) one of the three approaches that describe a CEO's perception of the board is that of improving the overall performance of the organization.

From table 4.12 below, the importance of assessment of the board is not as critical as that of the MD. Only 11% i.e 4 of 35 respondents consider the assessment of the board as very important. All 4 of MFI's had an active loan portfolio and client population of between \$50,000 and \$100,000 and over 5,000 respectively. A further 18% of the respondents (i.e. 6 MFI's) do not consider the assessment of the boards' performance as important at all.

This is may be attributed to CEO and top management fear of meddling by board members which Grady (1999) suggests as being one of the major obstacles to effective governance.

Table 4.12 Assessment of Board's Performance

ASSESSMENT OF BOARD'S PERFORMANCE	NUMBER OF RESPONDENTS	%
Very Important	4	11%
Important	21	60%
Somewhat Important	4	11%
Not Important	6	18%
TOTAL	35	100%

Felton et al (1995) further suggests that a formal confidential performance-oriented peer review system for individuals should be carried for effective governance practices.

4.4.7 Difference in Vision between Board & Management

As microfinance institutions transform into profit making institutions a clear understanding of the benefits of the transformation is required. According to Campion and Frankiewicz (Micro Finance Occasional Paper No. 3), one of the benefits of transformation is the relationship between the old and new institution and the board in its oversight role and management in its strategic and operational role should both have a common vision of the future of the organization.

Table 4.13 Difference in Vision between Board & Management

Difference In Vision Between Board & Management	NUMBER OF RESPONDENTS	%
Very Common	4	11%
Fairly Common	9	26%
Infrequent	4	11%
Never	18	52%
TOTAL	35	100%

From table 4.13 above, 52 % of the respondents indicate that both the board and management have common visions while 11% indicated that differences in vision were infrequent. This translates to 22 MFI's that value need for a common organizational vision between the board and top management. All 22 MFI's had a total active loan portfolio of over \$50,00. This strengthens the resolve of the organization towards successful transformation into profit making organizations.

In this chapter the findings of the study are summarized and discussed in relation to the objectives of the study. This chapter includes the conclusion, limitations, recommendation and suggestions for further research. Governance practices are used to establish the level of awareness and understanding of institutional governance issues in the MFI sector.

5.1 Conclusion

Table 4.14 below details critical responses that establish the level of awareness of MFI's in Kenya.

Table 4.14 Summary: Governance Practices

GOVERNANCE PRACTICE	RESPONSE	NO. OF RESPONDENTS	%
Financial Services Objective	Ability to cover Costs with Donor Income	15	43%
Non-Financial Services Objective	Poverty Alleviation	18	52%
Board Member Skills	Auditing/Accounting	9	26%
Length of Terms of Chair	No Set Terms	9	26%
Frequency of Meetings	No Response	19	52%
Who Creates the Agenda	Chair	18	52%
Nature of Organization's Board	Strategic Planning and Policy Decisions	18	52%
Assessment of MD's Performance	Very Important	18	52%
Assessment of Board's Performance	Important	21	60%
Assessment of Board's Performance	Not Important	6	18%
Difference in Vision between Board & Management	Never	18	52%

MFI's are increasingly under pressure from donor agencies to move towards sustainable development. Traditionally, most MFI's have simply been concerned with covering costs using donor funds. 43% i.e. 15 of 35 respondents indicated that their main financial objective was the ability to cover costs with donor and other income. 8 of the 15 respondents had an active loan portfolio between \$50,000 and \$100,000. This suggests that the recent trend of most MFI's to move towards financial and operational self-sufficiency needs to be further researched.

Transforming MFI's have generally been accused of neglecting their social mission of providing credit to the below average income earner. Over 51% of the respondents indicated that poverty alleviation is the main non-financial services objective.

This suggests that though MFI's in Kenya are committed to poverty alleviation but they do so through donor funds and not sustainable development.

Donor agencies are also concerned with the lack of well-designed corporate structures in most MFI's (Micro Finance Network, 1998) and the resulting lack of accountability, control and planning (Oster, S.M 1995). Only 26% i.e. 9 out of 35 respondents indicated that auditing and accounting skills were represented on the board. 4 out of 9 of these MFI's had an active loan portfolio of between \$50,000 and \$100,000.

This may suggest poor oversight responsibilities by MFI boards. According to Maria Otero (Principles and Practices of Microfinance Governance, 1999), one of the major conditions of donor agencies today is the effective oversight responsibility of boards

According to the World Bank Review on Corporate Governance (2000), corporate failure is often attributed to abuse of power. The length of the chair should be limited in an effort to minimize the likelihood of abuse by the chair. In some MFI's in Kenya, the Board Chair and the Chief Executive Officer is one and the same person.

From the summary table above (Table 4.14), 26% of the respondents did not have set terms for the board chair. In addition to this, over 52% of the respondents did not specify the frequency of board meetings and indicated that the board Chair created the agenda for board meetings. This may suggest that MFI's are open to abuse of power by the board chair who as mentioned above, may in some cases also be the CEO.

According to Campion and Frankiewicz (Micro Finance Occasional Paper No. 3), a clear understanding of the benefits of transformation from simple conceptualization to strategic thinking and implementation is among the guidelines to effective governance. Over 50% of the respondents indicated that strategic planning and policy decisions correctly defined the nature of their boards. All MFI's with over \$100,000 in active loan portfolio and with over 5,000 clients indicated that strategic planning and policy decision-making was the primary nature of the board. This suggests that most MFI's understand and value the boards' role in strategic planning.

From the summary of governance practices (table 4.14 above), over 50% of the respondent indicated that differences in vision between the board and management never occurred further supporting that most MFI's understand and value the boards role in strategic planning.

However, differences between the importance of the assessment of the board and that of management do exist. Over 50% of the respondents indicated that the assessment of the MD's performance was very important while 60% indicated that the assessment of the board's performance was important (as opposed to very important).

18% i.e. 6 of the 35 respondents indicated that the assessment of the boards' performance was not important at all. 3 of the 6 had an active loan portfolio between \$50,000 and \$100,000.

While all MFI's indicated that they were aware of the importance of good governance, some of their practices, as discussed above, contradicted their claims (Table 4.14 below).

Table 4.15 Governance Awareness

Importance of good Governance Practices	NUMBER OF RESPONDENTS	%
Very Important	35	100%

The challenge for MFI's in Kenya is to go beyond simply acknowledging the importance of effective governance, to being active participants in the process. Only through effective governance practices will MFI's successfully transform to financial and operational self-sustainable organizations.

5.2 Limitations of the Study

The main limitations of the study were time, money and the skepticism displayed by some MFI's who ignored important aspects of the questionnaire while others even questioned the study's intention and feared that the facts would be misrepresented.

5.3 Case for further research

The importance of effective governance remains key to the success of any institution and more so for an MFI whose primary source of funds is donor related. Governance practices of MFI's continue to come under close scrutiny.

Through an umbrella organization AMFI (Association of MicroFinance Institutions) member MFI's are focusing on important issues of governance. All MFI's should in light of the current developments, seek to join AMFI and strive towards effective governance. Without this donor agencies will remain discouraged and donor funds will remain limited. On the other hand, donors should enforce stricter governance requirements that insist on well-structured boards for MFI's.

Stakeholders in the sector including donor agencies are therefore encouraged to further the study on board practices.

APPENDIX 1

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Governance Survey Questionnaire

1. Institutional Information

- 1.1 Name of Institution _____
- 1.2 Name of Respondent _____
- 1.3 Title _____
- 1.4 No of Clients _____
- 1.5 Active Loan Portfolio (\$US) _____
- 1.6 Date for Statistics _____

2. Organizational Structure and Objectives

- 2.1 How is your organization's structure characterized? (mark all relevant)
 - a) Non-Profit Organization
 - b) Public
 - c) Foundation
 - d) Other _____

- 2.2 In regard to the financial services your organization provides, what objective is most important, at this time? (choose one)
 - a) Financial Self-sufficiency
 - b) Operational Self-sufficiency
 - c) Ability to cover costs with donor and other income

- 2.3 Which level of non-financial results best describes the organization's objectives at this point in time? (choose one)
- a) Poverty alleviation
 - c) Micro enterprise development
 - b) Job creation
 - d) Maximum access to financial services

3. Board Composition

- 3.1 How many members are on the Board of Directors?
- 3.2 Of these, how many are women?
- 3.3 How many live overseas?
- 3.4 How many board members are employees of the organization?
- 3.5 What skills are represented on your Board? (Mark all appropriate)
- a) Legal
 - b) Financial
 - c) Public relations
 - d) Auditing/accounting
 - e) Micro enterprise expertise
 - f) Others

What additional specific skills would you like to see added to your Board? Please list.

- 3.6 What is the typical manner in which Board members are nominated and selected? (Mark all appropriate)
- a) By Managing Directors
 - b) By Chair
 - c) By other board members
 - d) By executive search firm
 - e) Others

- 3.7 What is the length of terms for Board members? (choose one)

- a) 1-12 months
- b) 13-24 months
- c) 25-36 months
- c) 37+ months
- d) No set terms

3.8 Are Board terms renewable? (Choose one)

- a) Yes, indefinitely
- b) Yes, for renewable terms
- c) No
- d) Not applicable.

3.9 How is the Chair nominated and selected? (Please describe)

3.10 What is the length of terms for the Chair? (Choose one)

- a) 1-12 months
- b) 13-24 months
- c) 25-36 months
- d) 37+ months
- e) No set terms

3.11 Is the Chair's term renewable? (Choose one)

- a) Yes, indefinitely
- b) Yes, for renewable term(s)
- c) No
- d) Not applicable

3.12 Which officers does the Board elect? (Mark all appropriate)

- a) Chair
- b) Vice President
- c) Treasurer
- d) Secretary
- e) Other

3.13 How important are the officers to the proper functioning of the Board?
(Choose one)

- a) ___ Very important
- b) ___ Important
- c) ___ Somewhat important
- d) ___ Not Important

4. Board Structure

4.1 Please complete this table that outlines the following information for all Board Committees, listed in order of importance to the proper functioning of the organization

	Committee Name	# Members Involved	Separate Meetings # Times/Year	Responsibilities
1				
2				
3				
4				
5				

4.2 For which of the following does the organization maintain documents? (Mark all that apply)

- a) ___ organizational policies e.g. personnel policies
- b) ___ credit policy
- c) ___ board meeting minutes
- d) ___ strategic/ business plan
- e) ___ employee job description

4.3 Are there written by-law and statutes detailing the following issues? (Mark all that apply)

- a) ___ # board members
- b) ___ meetings per year

- c) ___ term lengths
- d) ___ roles and responsibilities
- e) ___ board members selection
- f) ___ quorum requirements

5. Board Meetings

- 5.1 How often does the Board meet? (# times/year)
- 5.2 What percentage of Board representation is required to constitute a quorum (the number of members required to conduct business per the institution's by-law)?
- 5.3 Who creates the agenda for the meeting?
- a) ___ Chair
 - b) ___ Managing Director
 - c) ___ Managing Director with Board Director
 - d) ___ Other

6. Role of the Board

- 6.1 Which description best describes the nature of your organization's Board? (Mark one)
- a) ___ monitor organizational activities but leaves most decisions up the management
 - b) ___ involved in strategic planning and policy decisions but no involved with operational decision making
 - c) ___ actively involved in many levels of decision-making including operational decisions.
- 6.2 Please mark items in order of priority that are direct responsibilities of the Board. (1= very important, 2= important, 3= somewhat important, 4= not important) or and (for not applicable)
- a) ___ strategic planning
 - b) ___ identify sources of technical assistance/ information

- c) ___ fundraising
- d) ___ oversee effective management of the institution
- a) ___ approve budget
- b) ___ attract positive media attention, public relation
- e) ___ review audit reports
- f) ___ assessment of Managing Director's performance
- e) ___ assess Board's performance
- f) ___ hiring/firing senior management
- k) ___ monitor financial status of the institution
- l) ___ others

6.3 For which operational activities is Board approval required? (Mark all that apply)

- a) ___ opening a new branch
- b) ___ expenses above a certain amount
- c) ___ hiring/firing senior management
- d) ___ introducing new products
- e) ___ changes in credit policy
- f) ___ selecting or changing auditors
- g) ___ other

6.4 In your opinion, what is the greatest strength of your Board of Directors?

6.5 In your opinion, what is the greatest weakness of you Board of Directors?

7. Institutional Performance

7.1 Please complete the table below indication how often these reports are

- 1) produced by the institution and
- 2) how often they are sent to the Board or appropriate committee. (# times/year)

	Produced by the Institution	Sent to the Board
Balance Sheet		
Income Statement		
Portfolio Report		
Cash Flow Statement		
Strategic Plan		
Internal Audit Report		
External audit Report		
Market Share Information		
Performance per loan Product		
Social Impact Statistics		

8. Conflict and Resolution

Indicate frequency in which the Board has had to deal with the following issues in the last 3 years?
(1- most common, 2= fairly common, 3= infrequent, 4= never)

- a) ___ Suspected fraud
- b) ___ Diminishing quality of loan portfolio
- c) ___ Liability issue, e.g. law suit
- d) ___ Over zealous growth, exceeding resources
- e) ___ Legal issue, e.g. change in tax status
- f) ___ Board unable to reach consensus
- g) ___ Personality conflicts with board
- h) ___ Inactive board members
- i) ___ Staff morale problem
- j) ___ Poor communication (Board/Mgmt)
- k) ___ Insufficient information from management
- l) ___ Board and Mgmt. have different visions affecting strategic planning
- m) ___ Personality conflicts between Board and Management

Please describe one of the more difficult issues encountered and how it was resolved.

What is the most important issue the Board is currently addressing? What strategies do you plan on using to address it? Or how do you think it will be resolved?

**THE STRATEGIC RESPONSE BY LIFE INSURANCE
COMPANIES IN KENYA TO CHANGES IN THEIR
ENVIRONMENT**

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BY


WAIREGI B. I.

**A MANAGEMENT RESEARCH PROJECT SUBMITTED IN
PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE
DEGREE OF MASTER OF BUSINESS ADMINISTRATION,
FACULTY OF COMMERCE UNIVERSITY OF NAIROBI**

DECEMBER, 2004

DECLARATION

This research project is my original work and has not been submitted for a degree course in this, or any other University.

Signed  _____
BENSON I. WAIREGI

Date 24th December 2004

This research project has been submitted for examination with my approval as a University Supervisor

Signed  _____
PROF. EVANS O. AOSA

Date 4/3/2005

Supervisor, Faculty of Commerce

University of Nairobi

DEDICATION

To my dear wife Margaret W. Wairegi, my children Simon Wairegi, Eldad Wachira and Agnes Wambui for their love, support and encouragement.

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My pursuit of the MBA degree would not have been possible without the encouragement, support and assistance of a large number of people. Space does not allow me to name them all but I am nevertheless extremely grateful to them.

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All my lecturers were extremely supportive but Mr. T. M. Mutugu clearly stands out.

I owe a great debt of gratitude to the Chief Executives and managers of the insurance companies for the sacrifice they made by taking time off their busy schedule to complete the questionnaire.

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ABSTRACT

Over the last 10 years there have been many changes in the Kenyan economy. These changes have had a considerable impact on all industries and the life insurance industry is no exception.

This research project was a census to determine the political, economic, social, legal and technological changes that had taken place in Kenya and the strategies that the life insurance companies had adopted to respond to these changes. In order to achieve these objectives, a questionnaire was mailed to all the companies licensed to transact life insurance business in Kenya. Economic recession, inflation, poverty, political instability and uncertainty, HIV/AIDS, income inequality between the rich and poor people and urban and between rural areas, computerization, the Internet and mobile telephony were identified as the major changes that had taken place in the country during this period.

The study established that the industry had responded to these changes through such initiatives as new product development, development of new distribution channels such as the Internet, organizational restructuring, investment in human resource development and computerization of the core business processes. The study also established that the low levels of life insurance penetration were caused by low levels of disposable income, lack of awareness by the public on the benefits of life insurance,

poor image of the insurance companies and intermediaries and lack of government incentives to the insuring public.

Despite these challenges the study established that life insurance is an attractive industry. However, of the three lines of life insurance business, that is individual life, group life and pensions, it emerged that the latter two lines of business are less attractive than ordinary life insurance business.

Finally, the study established that there were structural and legal impediments which needed to be overcome before the industry could develop and achieve a high penetration ratio. Such impediments include composite licensing, a weak industry regulatory framework and the taxation regime.

Further research on the industry can be undertaken by means of a cross sectional survey on strategic responses by the major life insurance companies who control significant market shares or by means of a census survey on strategic responses for any one of the three classes of life insurance business, namely ordinary life insurance, group life insurance or pensions.

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CHAPTER 1: INTRODUCTION

1.1 Background

All organizations exist as open systems. A system is considered an open system if it interacts with its environment. Organizations are therefore neither self-sufficient nor self contained, but are environment dependent. Ansoff and McDonnell (1990) state that environment serving organizations (ESO's) are in constant two way interaction with the environment. They take in an assortment of resources from the environment, add value to them, and deliver them back to the environment in the form of goods and services. They therefore affect and are affected by external conditions that are largely beyond their control. Therefore, to successfully position a firm in competitive situations, its strategic managers must look beyond its operations.

According to Pearce and Robinson (2003) the modern executive must respond to the challenges posed by the firm's immediate and remote external environments. The remote external environment comprises factors that originate beyond any single firm's operating environment and comprise economic and social conditions, political priorities and technological developments, all of which must be anticipated, monitored, assessed and incorporated into the executive's decision making. That environment presents firms with opportunities, threats and constraints, but rarely does a single firm exert any meaningful reciprocal influence.

In the last 15 years, the Kenyan economy has experienced major changes. The magnitude, speed, unpredictability and impact of these changes has been accelerating. In the early 1990's the country experienced a financial crisis which was caused by economic imbalances and political uncertainty. Globalization and liberalization have opened up the economy to fierce competition. Rapid population growth, low economic growth and unemployment have resulted in increased poverty, crime and reduced purchasing power of the population. The emergence of multiparty democracy has seen a peaceful change of government, greater openness in the society and tolerance of diverse views, the formation of the Common Market for Eastern and Southern Africa (COMESA) and the East African Community (EAC) as regional economic blocs. New laws and regulations have been promulgated, existing ones amended while Information Technology has transformed the mode and speed of business processes and communications. On the social front higher educational levels have resulted in a more sophisticated consumer and HIV/AIDS has emerged as a major public health issue (Government of Kenya, Economic Survey 2001, 2004). In order to survive, business organizations should respond to these environmental developments.

1.2 The Insurance Industry in Kenya

Insurance is the pooling of risks by policyholders with the aim of indemnifying them from unforeseen risks. The primary function of insurance is to act as a risk transfer mechanism.

The basic principle of insurance is that the losses of the few are paid by the many. Its underlying purpose is to provide protection against the risk of financial loss, thus giving peace of mind to the policyholders. Life insurance is also a means of creating an immediate estate for one's dependants.

Insurance companies are financial institutions that function in the economy as part of the financial services industry. The financial services industry is made up of banks, building societies, insurance companies, insurance brokers, pension funds, fund management companies, stockbrokers, real estate companies, savings and credit societies etc. It has important effects on the performance of Kenya's economy, contributing approximately 11% to the Gross Domestic Product with insurance contributing about 3% to the GDP (Government of Kenya, Economic Survey 2004). Life insurance density (premiums per capita) in 2002 was US \$3 while life insurance penetration (premiums as a percentage of Gross Domestic Product) was 0.81% (Sigma 7/2003). The Kenya Government and the Association of Kenya Insurers (AKI) believe there is enormous untapped potential for long term insurance (Speech by Minister for Finance, Mr. David Mwiraria to the Association of Kenya Insurers (AKI) members on 14th September 2004, and AKI 2001 Fiscal Budget Proposals submitted to Treasury).

There are two classes of insurance business: general insurance (short term) also called property and casualty and life insurance (long term). The life insurance sector is further classified into ordinary life also called individual life, superannuation

(group life and pensions) and other life (industrial life, bond etc) while general insurance has 12 lines. As its name implies, life insurance is insurance on the life of a person, and, unlike in other forms of insurance, the event insured against in the life assurance (death and superannuation) is bound to happen, hence the term assurance (Khamalla, 1985). The twelve lines in general insurance are: Aviation, Engineering, Fire-Domestic, Fire-Industrial, Liability, Marine, Motor-Private, Motor-Commercial, Personal Accident, Theft, Workmen's Compensation and Miscellaneous.

The total gross direct premiums collected by the whole industry in 2003 amounted to Shs.28.5 billion. Out of this, Shs.8.5 billion (30%) related to long term insurance while the balance of Shs.20.0 billion (70%) related to non life. As at 31st December 2003, the insurance industry had 42 registered insurance companies of which 39 were registered to conduct business while 2 operated as closed funds and one insurer was under statutory management. Two local reinsurers were operating in the market while four Regional and International reinsurers had representative offices in the country. Other insurance intermediaries included 212 insurance brokers, 1970 insurance agents, 200 loss assessors, 29 risk surveyors, 17 loss adjusters and 8 risk managers. (Government of Kenya, Report of the Commissioner of Insurance, 2003 and Economic Survey, 2004)

1.3 Statement of the Problem

The many changes that have occurred have altered the environment in which business organizations are operating in Kenya. They have created opportunities and also posed challenges and threats to these business organizations. A review of the literature shows that there have been several studies on organizational responses by Kenyan companies to changes in their environments (Tari 1998, Abdullahi 2000, Kandie 2001, Mwarania 2003, Kiptugen 2003). Each of these studies has focused on a specific aspect or organization and none of them has focused specifically on the life insurance industry per se.

Life insurance is an important sector in the financial services industry. It plays a vital role in the mobilization of long term savings and investments in the economy. Yet, life insurance penetration is a mere 0.81% while life insurance density is \$3.0. This is quite low compared with other African countries such as South Africa, Zimbabwe and Mauritius. We would expect that life insurance companies in Kenya, like other business organizations would also have responded (adapted) to the environmental changes. Have they done so?

1.4 Objectives of the Study

To establish the strategic responses by the life insurance companies to changes in their environment.

1.5 Scope of the Study

The study focuses on the 22 insurance companies registered and licensed to transact long term insurance business in Kenya in 2004 and whose head offices are in Nairobi.

1.6 Importance of the Study

This study is expected to benefit the following:

- (i) The life insurance industry seeking to increase the penetration ratio and density of life insurance.
- (ii) Academics and scholars. It will enrich their knowledge of the industry and identify areas for further research.
- (iii) Policymakers, seeking a better understanding of the industry in order to formulate appropriate legislation on the industry.
- (iv) Potential investors in the life insurance industry who will gain a greater appreciation of the opportunities and challenges facing the life insurance sub sector.
- (v) The public in general and the policyholders of the life insurance industry in particular who will gain new insights into the industry.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter reviews the literature and authorities on strategy and strategic management. It explains why strategic management is an important area of general management, involving strategic diagnosis which is the process of identifying the strategic aggressiveness and organizational responsiveness that an organization needs to meet the future challenges of its environment. The chapter concludes with review of strategic responses by Kenyan companies and a discussion of the types of strategic responses available to a firm.

2.2 The Concept of Strategy

There is no agreed, all-embracing definition of strategy. It is commonly believed that our concept of strategy has been passed down to us from ancient Greeks.

Bracker (1980) argued that the word *strategy* comes from the Greek *stratego*, meaning "to plan the destruction of one's enemies through the effective use of resources". However, they developed the concept purely in relation to the successful pursuit of victory in war. The concept remained a military one until the nineteenth century, when it began to be applied to the business world (Barnes, 2000).

Chandler (1962) put forward the view that the emergence of strategy in civilian organizational life resulted from an awareness of the opportunities and needs created by changing population, income and technology – to employ existing or expanding resources more profitably. He defines strategy as the determination of the basic long term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals.

Ansoff and McDonnell (1990) state that “a strategy is a set of decision-making rules for guidance of organizational behaviour. It is an elusive and somewhat abstract concept. Its formulation produces no immediate productive action in the firm and it is an expensive process both in terms of money and managerial time”.

They postulate that recourse to strategy is necessary when rapid and discontinuous changes occur in the environment of the firm. This may be caused by saturation of traditional markets, technological discoveries inside or outside the firm, and/or a sudden influx of new competitors. Under these conditions, established organizational traditions and experience no longer suffice for coping with the new opportunities and new threats. Without the benefit of a unifying strategy, the chances are high that different parts of the organization will develop different contradictory and ineffective responses.

According to Mintzberg *et al* (1988) we need at least five definitions of strategy to gain a full understanding of what the concept is. The five interrelated definitions are:- strategy as a plan, strategy as a ploy, strategy as a pattern, strategy as a position and strategy as a perspective. This is not to argue that one definition should be preferred to the others. They should all be considered as alternatives or complementary approaches to strategy. They draw our attention to the distinction between conscious and unconscious strategy, and between emergent and planned strategy.

According to Pearce and Robinson (2003), by strategy, managers mean their large scale future-oriented plans for interacting with the competitive environment to achieve company objectives. A strategy is a company's game plan. A strategy reflects a company's awareness of how, when and where it should compete; against whom it should compete; and for what purposes it should compete.

Johnson and Scholes (2002) have identified several characteristics that are associated with strategy. First, strategy is likely to be concerned with the long term direction of an organization. Secondly strategy is about trying to achieve some advantage for the organization over competition. Thirdly it is likely to be concerned with the scope of an organization's activities. Fourthly strategy can be seen as the process of matching the resources and activities of an organization to the environment in which it operates. This is known as strategic fit – identifying opportunities in the business environment and adapting resources and competencies

so as to take advantage of these. Strategy can also be seen as the process of building on or stretching an organization's resources and competencies to create opportunities or to capitalize on them. This is known as strategic stretch. Strategy development by stretch is the leverage of the resources and competencies of an organization to provide competitive advantage and/or yield new opportunities. Strategies may also be seen as requiring major resource changes for an organization. Strategic decisions are likely to affect operational decisions. Finally, the strategy of an organization is affected by the values, beliefs and expectations of those who have power in the organization. Strategy is therefore a reflection of the attitudes and beliefs of those who have most influence on the organization

Strategy is a potentially very powerful tool for coping with the conditions of change which surround the firm today. But it is complex, costly to introduce and costly to use (Ansoff and McDonnell 1990).

2.3 Strategic Management

Ansoff and McDonnell (1990) define strategic management as a systematic approach to a major and increasingly important responsibility of general management to position and relate the firm to its environment in a way which will assure its continued success and make it secure from surprises. It is concerned with designing and implementing a firm's adaptation to changes in its external environment; a response they refer to as strategic activity.

According to Johnson and Scholes (2002) strategic management is concerned with complexity arising out of ambiguous and non-routine situations with organization-wide rather than operation-specific implications. It involves understanding the strategic position of the firm, making strategic choices and putting strategy into action.

Barnes (2000) states that strategic management focuses on the environmental assumptions that underlie market trends and incorporates the possibility that changes in trends can and do take place, and is not based on the assumption that adequate growth can be assured. In addition, strategic management focuses more closely on winning market share from competitors rather than assuming that organizations can rely solely on the expansion of markets for their own growth (Hax and Majiluf, 1996).

Pearce and Robinson (2003) defines strategic management as the set of decisions and actions that result in the formulation and implementation of plans designed to achieve a company's objectives. It involves the planning, directing, organizing and controlling of a company's strategy related decisions and actions. Strategic management activities are undertaken at three levels: corporate, business and functional.

The corporate level is the top level and is composed of the board of directors and the senior management. They are responsible for the firm's financial performance and for the achievement of non financial goals such as enhancing the firm's image and fulfilling its social responsibilities. The business level is composed of strategic business unit managers who translate the statements of direction and intent generated at the corporate level into concrete objectives and strategies for individual business units. The functional level is composed of managers of product, geographic and functional areas such as production, operations, finance, marketing, human resources etc.

Strategic management is beneficial to firms and their managers. The behavioural consequences of strategic management are similar to those of participative decision making. Several behavioural effects of strategic management improve the firm's welfare by enhancing the firm's ability to prevent problems and reduction of resistance to change. The strategic management process results in better decisions because group interaction generates a greater variety of strategies and because forecasts based on the specialized perspectives of group members improve the screening of options. Strategic management planning also breeds managerial confidence. Strategic management however also has risks, such as the negative impact on manager's operational responsibilities due to the amount of time they spend on the strategic management process.

2.4 Strategic Diagnosis

Ansoff and McDonnell (1990) assert that the first step in strategic management is to perform a strategic diagnosis which identifies the type of strategic aggressiveness and organizational responsiveness a particular firm needs to develop in order to meet the future challenges of its environment. Strategic diagnosis is a systematic approach to determining the changes that have to be made to a particular firm's strategy and its internal capability in order to assure the firm's success in its future environment. This diagnostic procedure is derived from the strategic success hypothesis which states that a firm's performance potential is optimum when the aggressiveness of its strategic behaviour matches the turbulence of its environment, the responsiveness of its capability matches the aggressiveness of its strategy and the components of its capability are supportive of one another. In short, strategy must match the environment and capability must match the strategy. Strategic diagnosis determines the nature of the firm's strategic problem.

2.5 Strategic Responses

Ansoff and McDonnell (1990) note that strategic responses involve changes to the organization's behaviour. Such responses may take many forms depending on the organization's capability and the environment in which it operates. Well developed and targeted strategic responses are formidable weapons for a firm in acquiring and sustaining a competitive edge. The results of strategic activity are new products,

new services, new processes, new markets, abandoned markets, new competitive strategies for attacking the markets and new responses to social and political challenges. The overall responsibility for effective strategic response belongs to the general management of the firm.

Peters and Waterman (1982) assert that innovative companies are especially adroit at continually responding to change of any sort in their environment. When the environment changes these companies change too. As the needs of their customers shift, the skills of their competitors improve, the mood of the public pertubates, the forces of international trade realign and government regulations shift, these companies tack, revamp, adjust, transform and adapt. In short, as a whole culture, they innovate.

Tari (1998) found that as a result of HIV/AIDS scourge, life insurance companies had responded to the threat by applying experience rating, additional reserving, additional questions, non acceptance of group life proposals without accompanying pension scheme and restriction of insurance cover.

In a study of the Kenyan Insurance Industry, Abdullahi (2000) found that although economic reforms in Kenya had made the business environment very turbulent and the insurance companies agreed that there was need to respond to the changes in the environment, they had not properly adjusted to the changes. It is no wonder then that they were in a crisis.

In a study on Telkom Kenya, Kandie (2001) found that despite a major change in the environment of Telkom Kenya occasioned by the liberalization of telecommunications, the corporation's strategic aggressiveness was not consistent with the environmental turbulence and its organizational capability was not in line with the strategy. This had adversely affected the competitive position of the firm.

Kiptugen (2003) established that, as a result of the economy's progressive decline and liberalization, legislative changes and technological advances, Kenya Commercial Bank Limited had responded by restructuring its operations through closure of branches, disposal of non core assets, development of new marketing strategies, acquisition of a flexible IT system to provide better quality customer service and culture change.

Mwarania (2003) found that as a result of the phasing out of the mandatory cessions which had hitherto guaranteed business, Kenya Reinsurance Corporation Limited responded by engaging in an aggressive local and international marketing programme, organizational restructuring, investments in real estate and Information Technology. These responses resulted in increased profitability for the corporation despite reduction in gross premiums.

2.5.1 Competitive Strategy

Porter (1980) states that the goal of competitive strategy for a business unit in an industry is to find a position in the industry where the company can best defend itself against the five competitive forces – entry, threat of substitution, bargaining power of buyers, bargaining power of suppliers and rivalry among current competitors. These five forces constitute the industry structure and it is from industry analysis that the firm determines its competitive strategy.

He has identified three potentially successful generic strategy approaches to outperforming other firms in an industry. These are, overall cost leadership, differentiation and focus. In formulating its strategic response to changes in its environment, a firm must have first decided on a core idea or generic strategy about how it can best compete in the market place. This is its strategic orientation.

2.5.2 Organizational Structure

Organizational structure is the grouping of the firm's logistic and managerial activities. This grouping of activities was stimulated by the growing size and complexity of internal operations and the growing turbulence of the firm's environment. Successful organizations once required an internal focus, structured interaction, self-sufficiency, a top-down approach. Today and tomorrow,

organization structure reflects an external focus, flexible interaction, interdependency and a bottom-up approach (Pearce and Robinson 2003).

One of the strategic responses to environmental turbulence is restructuring. At the heart of restructuring is the notion that some activities within a business's value chain are more critical to the success of the business's strategy than others. Business Process re-engineering (BPR), popularized by consultants Hammer and Champy (1993) is one of the more popular methods by which organizations have undergone restructuring efforts to remain competitive.

BPR is intended to reorganize a company so that it can best create value for the customer by eliminating barriers that create distance between employees and customers. It involves fundamental rethinking and radical redesign of a business process to achieve dramatic improvements such as cost, quality, service and speed.

Re-engineering and a value orientation have led to downsizing, outsourcing and self management as three themes influencing organizational structures. It has also resulted in the formation of strategic alliances. Downsizing is eliminating the number of employees particularly middle management in a company. Downsizing results in increased self-management, larger spans of control and more work for those that remain. Outsourcing is obtaining work that was previously done by employees inside the organization from sources outside the company. Many organizations have outsourced some activities such as information processing,

various personnel activities, and production of parts that can be done better outside the company. Outsourcing, then, can be a source of competitive advantage and result in a leaner, flatter organization structure. Strategic alliances with suppliers, partners, contractors and other providers allow partners to the alliance to focus on what they do best, farm everything else and quickly provide value to the customer.

A final aspect of organizational structure is the removal of structural barriers and the creation of the learning organization. Johnson and Scholes (2002) define a learning organization as one capable of continual regeneration from the variety of knowledge, experience and skills of individuals within a culture which encourages mutual questioning and challenge around a shared purpose or vision.

2.5.3 Marketing

Kotler (2000), defines marketing as a societal process by which individuals and groups obtain what they need and want through creating, offering and freely exchanging products and services of value with others. It has also been defined as the process of planning and executing the conception, pricing, promotion and distribution of ideas, goods and services to create exchanges that satisfy individual and organizational objectives.

An excellent way to analyse marketing as a strategic response is to use the Product – Market Expansion Grid proposed by Ansoff (1957).

Table 1: Product Market – Expansion Grid

PRODUCTS MARKETS	CURRENT PRODUCTS	NEW PRODUCTS
CURRENT MARKETS	1. Market Penetration Strategy	3. Product Development Strategy
NEW MARKETS	2. Market Development Strategy	4. Diversification Strategy

Source: Kottler (2000)

Market penetration strategy involves marketing current products in current markets. This is not a viable strategic response in a changing environment.

Market development strategy consists of marketing current products, often with only cosmetic modifications, to customers in new markets by, for example, adding channels of distribution or by changing the content of advertising or promotion.

Product development involves substantial modification of existing products or the creation of new but related products that can be marketed to current customers through established channels. An alternative term for product development is innovation. The key to success in today's competitive environment is continual substitution of new products and services which are superior to the historical products and services. Firms which do not innovate do not survive (Ansoff and McDonell, 1990).

2.5.4 Diversification

Diversification makes sense when good opportunities can be found outside the present businesses. Kottler (2000) states that a good opportunity is one in which the industry is highly attractive and the company has the mix of business strengths to be successful. Three types of diversification are possible. The company could seek new products that have technological and/or marketing synergies with existing product lines even though the new products themselves may appeal to a different group of customers (*concentric diversification*). Second, the company might search for new products that could appeal to its current customers even though the new products are technologically unrelated to its current product line (*horizontal diversification*). Finally the company might seek new businesses that have no relationship to the company's current technology, products or markets (*conglomerate diversification*).

2.5.5 Divestiture

Divestiture involves the sale of a firm or a major component of a firm. Companies must not only develop new businesses, but also carefully prune, harvest or divest tired and weak businesses or products in order to release needed resources and reduce costs. Kottler suggests that managers should focus on the company's growth opportunities, not fritter away energy and resources trying to salvage

hemorrhaging businesses. Sometimes the cash flow or financial stability of the firm can be greatly improved if businesses with high market value can be sacrificed.

2.5.6 Leadership and Culture

According to Kotter (1990), Leadership is about coping with change. Part of the reason leadership has become so important in recent years is that the business world has become more competitive and more volatile. Major changes are more and more necessary to survive and compete effectively in this new environment. More change always demands more leadership. Pearce and Robinson (2003), observe that organizational leadership involves action in first guiding the organization to deal with constant change by embracing change, clarifying strategic intent and shaping the culture to fit with opportunities and challenges that change affords and second, identifying and supplying the organization with operating managers prepared to provide leadership and vision.

Ansoff and McDonnell (1990) characterize organization leadership as general management capability. They define general management capability as the propensity and ability of the general management to engage in behaviour which will optimize attainment of the firm's near and long term objectives. They see general management's role as that of a developer of the firm's future. The successful performance of this role requires a climate within the firm which welcomes and seeks change, a competence to anticipate, analyze and select attractive

opportunities. They recognize that general management capability is determined by qualifications and mentality of key managers, social climate (culture) within the firm, power structure, systems and organization structure and capacity of general management to do managerial work.

According to Pearce and Robinson (2003) organizational culture is the set of important assumptions (often unstated) that members of an organization share in common. An organization's culture is similar to an individual's personality – an intangible yet ever present theme that provides meaning, direction and the basis of action. Insightful leaders nurture key themes or dominant values within their organizations that reinforce the competitive advantages they possess or seek, such as quality, differentiation, cost, and speed.

The most typical beliefs that shape organizational culture include a belief in being the best, a belief in superior quality and service, a belief in the importance of people as individuals and a faith in their ability to make a strong contribution, a belief in the importance of the details of execution, the nuts and bolts of doing the job well, a belief that customers should reign supreme etc.

One approach to develop a culture of quality is through Total Quality Management (TQM) whose ideas and principles were espoused by Deming (1950). TQM focuses management on the continuous improvement of all operations, functions and above all, processes of work. It is built around an intense focus on customer satisfaction,

on accurate measurement of every critical variable in a business's operation, on continuous improvement of products, services and on work relationships based on trust and teamwork. An important tool of TQM is benchmarking whose objective is to identify the "best practices" in performing an activity, to learn how lower costs, fewer defects, or other outcomes linked to excellence are achieved.

2.5.7 Information Technology

Since a large part of business activity is concerned with processing and transmitting information within and between organizations, information processing capability can improve an organization's strategic capability. The computer and developments in telecommunications are the most important aspects of Information Technology that have transformed the business environment and process. The computer has enabled the automation of many processes in business organizations which has led to dramatic improvements in productivity and reduction in costs while telecommunications have dramatically improved the speed with which information is transmitted thus facilitating speedy decision making.

Information technology has become an indispensable ingredient in several strategic thrusts that businesses have initiated to meet the challenges of change. Such strategic thrusts include internetworking, the Internet, intranets, extranets and other types of networks which have become the primary information technology infrastructure that supports the business operations. This is especially evident in

Electronic Commerce. Using information Technology for business process re-engineering frequently results in the development of information systems that help give a company a competitive advantage in the market place. These strategic information systems use information technology to develop products, services and processes and capabilities that give a business a strategic advantage over the competitive forces it faces in its industry (O'Brien, 1999).

The foregoing key components of the firm constitute a firm's potential capability. A firm's strategic response is concerned with adjustments in these components to accommodate changes in its environment and create competitive advantage for the organization.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter explains the procedures that were employed in fulfilling the objectives of the study and answering the research question. It explains the type and rationale for the research design, the method of data collection and data analysis.

3.2 Research Design

This was a census survey. A census survey is a count of all the elements in a population. This design was considered appropriate because the population was small. A census survey therefore afforded the basis for a more comprehensive exploration of the research question.

3.3 Population

The study units consisted of all the 22 insurance companies licensed to transact long term insurance business. These 22 companies comprise 5 companies licensed to only transact long term business and 17 composite insurers. These companies are listed on Appendix 1 Page 61.

3.4 Data Collection

Both primary and secondary data was collected in this study.

The primary data was in the form of a questionnaire mailed to all the 22 insurance companies. There was one respondent for each company who was either the Chief Executive Officer (CEO) or a senior manager familiar with the company's strategy.

Secondary data was obtained from the 2002 Annual Report of the Commissioner of Insurance.

3.5 Data Analysis

Once the completed questionnaires were received back, they were checked and edited for accuracy, completeness and consistency. The data was then coded and entered into the computer to facilitate analysis. Since the data was predominantly nominal data, the simple category scale (dichotomous scale) was used as a measurement scale. Frequency tables were used for visual display. The mean, where appropriate was the population parameter computed.

CHAPTER FOUR: RESULTS AND DISCUSSION

4.1 Introduction

This chapter documents and discusses the findings on the specific areas of inquiry of the study. Results have been summarized and presented by the use of frequency tables, percentages and the mean.

4.2 The Respondents' Profiles

The total number of companies in the census was 22 insurance companies that had been licensed to transact life insurance business. All the 22 companies responded. The response rate was therefore 100%. The respondents were senior managers of their respective companies and included 7 managing directors.

The companies had been in operation for periods ranging from 11 to 102 years with 62% of the companies having been in operation for between 21 to 40 years. The average period of operation was 42.19 years with a standard deviation of 25.321. One company had been in operation for only one year (Table 1).

Table 1: Years of Operation

Number of years in operation	Frequency	% of Responses
0-10	1	4.5
11-20	2	9.5
21-30	9	42.9
31-40	4	19.0
61-70	2	9.5
71-80	3	14.3
Above 80 years	1	4.8
Total	22	100.0

Source: Questionnaires

4.3 Environmental Changes

The respondents identified economic recession, low interest rates, inflation, poverty, decline in per capita income, liberalization, poor investment climate and depreciation of the currency as some of the economic changes that had had affected the economy (Table 2).

Table 2: Economic Changes

Description of Change	Frequency	% of Responses
Economic decline	8	19.5
Low interest rates	6	14.6
Inflation	5	12.2
Poor investment climate	4	9.8
Increased poverty	4	9.8
Decline in per capita income	3	7.3
Depreciation of Kenyan shilling	3	7.3
Liberalization	2	4.9
Cooperative societies	2	4.9
Poor infrastructure	2	4.9
Recession	1	2.4
Retrenchment	1	2.4
Total responses	*41	100.0

Source: Questionnaires

* The total responses exceeded the population because some respondents had more than one response

Political developments included political instability and uncertainty characterized by political agitation, demonstrations and insecurity. The major political change however was the change in government in the 2002 general elections. The new government however had not improved the business environment as expected due to perceived poor leadership and political squabbling amongst the coalition partners and political patronage in government procurement (Table 3).

Table 3: Political changes

Description of Change	Frequency	% of Responses
New government has not improved business	10	31.3
Poor political leadership	7	21.9
Political squabbles	5	15.6
Institutions are dependent on political goodwill	4	12.5
Insecurity	2	6.3
Constitutional review stalemate	1	3.1
Demonstrations and processions	1	3.1
Low anti corruption drive/campaign	1	3.1
	1	3.1
Total responses	*32	100.0

Source: Questionnaires

* The total responses exceeded the population because some respondents had more than one response

New laws such as the Retirement Benefits Act, the Anti Corruption Act had been enacted while other laws such as the Income Tax Act, the Insurance Act had been amended with unfavourable consequences on the industry. The HIV/AIDS Prevention and Control Bill had also been tabled in Parliament (Table 4).

Table 4: Legislative and Regulatory Changes

Description of Change	Frequency	% of Responses
RBA/NSSIF/HIV/AIDS Bills	11	40.7
Tax environment is not conducive	6	22.2
Introduction of life insurance relief	2	7.4
Restricted powers of the Commissioner of Ins.	2	7.4
Competition	2	7.4
Restriction on appropriation of surplus	1	3.7
Anti corruption legislation	1	3.7
1987 Act is archaic	1	3.7
Price wars	1	3.7
Total responses	*27	100.0

Source: Questionnaire

*The total responses exceeded the population because some respondents had more than one response

On social and demographic changes, the HIV/AIDS scourge was the biggest change that had occurred and unfavorably impacted the society through reduction in the life expectancy of the population. Also majority of the population was very young and there was disparity of incomes between the rich and the poor people and between rural and urban areas (Table 5).

Table 5: Social and Demographic Changes

Description of Change	Frequency	% of Responses
HIV/AIDS has reduced life expectancy	12	30.8
Majority of people are underage	7	17.9
Disparity in incomes between urban and rural areas	6	15.4
Unemployment	3	7.7
Preference for education/savings cover	2	5.1
Introduction of free primary education	2	5.1
Corruption	2	5.1
Majority of people are in informal employment	1	2.6
Smaller family sizes	1	2.6
Death of the Harambee motto	1	2.6
Poor risk management	1	2.6
Poor image of the life insurance industry	1	2.6
Total responses	*39	100.0

Source: Questionnaires

* The total responses exceeded the population because some respondents had more than one response

On Information Technology, the Internet, computerization and mobile telephony were identified as the major changes that had favorably impacted the business environment through improvements in operational efficiency (Table 6).

Table 6: Information Technology Changes

Description of Change	Frequency	% of Responses
General improvement in efficiency	9	24.3
Internet has improved communication	9	24.3
Websites have improved marketing	6	16.2
Mobile phones have improved communications	5	13.5
Computerization has improved underwriting	4	10.8
No improvement	3	8.1
There are more products	1	2.7
Total responses	*37	100.0

Source: Questionnaires

* The total responses exceeded the population because some respondents had more than one response

4.4 Industry Attractiveness and Life Insurance Penetration

On the overall attractiveness of the life insurance industry, over 73% of the respondents agreed that the industry was attractive. Barriers to entry for new players into the industry were perceived to be high. Ordinary life insurance emerged as the most attractive sector since the intensity of competition amongst existing players is relatively low, the bargaining power of both customers and suppliers (intermediaries) is weak. Group life and pensions sectors were not attractive since rivalry amongst existing players was high and the bargaining power of both customers and suppliers was high. 73% of the respondents agreed that there were many substitute products which compete with life insurance products (Table 7).

Table 7: Industry Attractiveness

Industry Attractiveness	Frequency	% of Responses
Attractive	16	72.7
Unattractive	6	27.3
Total	22	100.0

Source: Questionnaires

The penetration ratio of life insurance in Kenya was low. This was attributable to low levels of disposable income and lack of awareness of the benefits of life insurance. 68.2% of the respondents agreed that abolition of composite insurance licensing could increase the penetration ratio of life insurance by allowing companies licensed purely as life insurers to focus more on life insurance business while 77% of

the respondents agreed that hiving off the Life Insurance Council (LIC) from the Association of Kenya Insurers (AKI) and transforming it into a Life Offices Association would increase focus and the penetration ratio (Table 8).

Table 8: Causes of Low Penetration

Causes of low penetration	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Rank life insurance on levels of disposable income	21	3	5	4.33	.658	.433
Rank life insurance on Lack of government incentives to insuring public	22	1	5	3.50	1.336	1.786
Rank life insurance on Lack of government incentives to investors	21	1	5	3.33	1.017	1.033
Rank life insurance on Lack of awareness of benefits of life insurance	22	2	5	4.50	.859	.738
Rank life insurance on Poor image of the life insurance companies	22	2	5	3.77	.973	.946
Rank life insurance on Poor image of the intermediaries	21	1	5	3.43	1.326	1.757
Rank life insurance on Others (specify)	7	3	5	4.29	.756	.571

Source: Questionnaires

Note: This Table is based on 5 point Likert Scale with a score of 5 being the most important and a score of 1 being the least important.

4.5 STRATEGIC RESPONSES

4.5.1 Organizational Restructuring

Most companies in the study had undertaken various organizational restructuring processes. Such organizational restructuring included business process re-engineering (BPR) (16), downsizing (12), dropping off products or product lines (11)

and outsourcing certain non core functions such as office cleaning, provision of office tea, office repairs, maintenance and security (19). Relatively, few companies had entered into strategic alliances (7) or outsourced investment management (9). Tables 9 to 13 below show the restructuring activities undertaken by the respective organizations.

Table 9: Business Process Reengineering (BPR)

Response	Frequency	% of Responses
Yes	16	72.7
No	5	22.7
Missing	1	4.5
Total	22	100.0

Source: Questionnaires

Table 10: Downsized

Response	Frequency	% of Responses
Yes	12	54.5
No	10	45.5
Total	22	100.0

Source: Questionnaires

Table 11: Entered into strategic alliance

Response	Frequency	% of Responses
Yes	7	31.8
No	15	68.2
Total	22	100.0

Source: Questionnaires

Table 12: Dropped any products or product lines

Response	Frequency	% of Responses
Yes	11	50.0
No	11	50.0
Total	22	100.0

Source: Questionnaires

Table 13: Outsourced provision of office cleaning, repairs/maintenance etc.

Response	Frequency	% of Responses
Yes	19	86.4
No	3	13.6
Total	22	100.0

Source: Questionnaires

4.5.2 Marketing

Whilst 91% of the respondents had introduced new products or new features to the existing products to address such needs as education, funeral expenses, inflation, investment and protection, only 18% of the companies in the study had introduced inflation-indexed life insurance policies, while 27% had introduced unit linked life insurance policies. As regards entering new markets and developing new distribution channels 77% of respondents had opened branches within Kenya while 73% had developed new channels of distribution such as bancassurance, the Internet, direct mail, and telemarketing. However, only 27% of the respondents

had ventured outside Kenya. 27% of respondents had set up a fund management company in response to the Retirement Benefits Act. Also 54% of the companies had divested from some businesses through closure of branch offices or withdrawal of some products from the market. Tables 14 to 21 show the various marketing responses undertaken by the companies.

Table 14: Introduced new products

Response	Frequency	% of Responses
Yes	20	90.9
No	2	9.1
Total	22	100.0

Source: Questionnaires

Table 15: Selling inflation-indexed life insurance policies

Response	Frequency	% of Responses
Yes	4	18.2
No	18	81.8
Total	22	100.0

Source: Questionnaires

Table 16: Selling unit linked life insurance policies

Response	Frequency	% of Responses
Yes	6	27.3
No	16	72.7
Total	22	100.0

Source: Questionnaires

Table 17: Opened new branches within Kenya

Response	Frequency	% of Responses
Yes	17	77.3
No	5	22.7
Total	22	100.0

Source: Questionnaires

Table 18: Opened new operations/companies outside Kenya

Response	Frequency	% of Responses
Yes	6	27.3
No	16	72.7
Total	22	100.0

Source: Questionnaires

Table 19: Developed new channels of distribution

Response	Frequency	% of Responses
Yes	16	72.7
No	6	27.3
Total	22	100.0

Source: Questionnaires

Table 20: Set up a fund management company

Response	Frequency	% of Responses
Yes	6	27.3
No	16	72.7
Total	22	100.0

Source: Questionnaires

Table 21: Divested from a line of business

Response	Frequency	% of Responses
Yes	12	54.5
No	10	45.5
Total	22	100.0

Source: Questionnaires

4.5.3 Investment Portfolio

The investment portfolio is well diversified in various asset classes within Kenya (Table 22). This is in compliance with the Insurance Act. However there was very little (2.4%) offshore investment and 72% of the respondents cited regulatory restrictions as the reason for not investing offshore. This finding is corroborated by the investment channels on Table 23.

Table 22: Investment Portfolio

Investment Assets	Frequency	% of Responses
Government securities	21	16.5
Bank deposits	21	16.5
Policy loans	18	14.2
Land and buildings	17	13.4
Shares in NSE	15	11.8
Mortgage loans	14	11.0
Commercial paper (Corporate bonds)	13	10.2
Offshore securities	3	2.4
Others	4	3.9
Total responses	127	100.0

Source: Questionnaires

Table 23: Investment Channels under Long Term Insurance Business

Investment Channel	1998	1999	2000	2001	2002
	KShs'000	KShs'000	KShs'000	KShs'000	KShs'000
Government securities	8,353,726	9,822,452	9,628,513	12,566,040	15,244,065
Local authorities	0	0	0	0	0
Other securities	786,380	483,441	620,385	703,611	269,865
Debentures	14,101	17,440	881,528	20,764	33,276
Preference shares	5,601	316,532	25,622	24	24
Ordinary shares	3,591,634	2,533,729	1,726,287	1,856,255	1,959,135
Secured loans	1,660,435	1,669,795	1,967,606	2,096,783	2,116,099
Unsecured loans	6,056	3,000	91,545	4,152	55,000
Bank deposits	1,257,480	1,270,305	2,033,538	1,660,272	1,906,693
Land & buildings	7,113,646	7,387,305	8,162,422	7,473,062	7,690,292
TOTAL	23,890,860	23,504,408	25,137,446	26,380,963	29,274,449

Source: Government of Kenya, Report of the Commissioner of Insurance, 2002

5.4 HIV and AIDS

In response to the question whether HIV/AIDS was a threat to the financial health of the industry, 96% responded that the reported reduction in the life expectancy of Kenyans due to HIV and AIDS was a threat to the financial health of the life insurance industry in Kenya. Consequently 91% of the respondents had revised their underwriting requirements in response to the threat (Table 24). These underwriting requirements included, subjecting applicants to medical examinations, limits on non medical examination amounts and free cover limits, exclusion clauses and additional questions on the application form, additional reserves and removal of premium rate guarantees (Table 24).

Table 24: Have you revised your underwriting requirements in response to HIV/AIDS pandemic?

Response	Frequency	% of Responses
Yes	19	86.4
No	2	9.1
Missing	1	4.5
Total	22	100.0

Source: Questionnaires

Only 28.6% of the respondents subject all ordinary life insurance applicants to medical examinations (Table 25).

Table 25: Do you subject all applicants for ordinary life insurance policy to medical tests?

Response	Frequency	% of Responses
All applicants are subjected to medical examination	6	27.3
We have non-medical limits	15	68.5
Missing	1	4.5
Total	22	100.0

Source: Questionnaires

Very few companies (18.2%) had launched new products such as the lien option to address this challenge.

The class of life insurance business for which HIV and AIDS poses the greatest threat to the financial health of the life insurance industry emerged to be the group life business (72.7%) followed by ordinary life (22.7%), and pensions (4.5%) respectively. 82% of the respondents agreed that the proposed HIV/AIDS

Prevention and Control Bill 2004 will have a negative impact on the future growth of life insurance in Kenya.

4.5.5 Government Regulation and Legislation

95% of the companies found the various legal and legislative requirements to be burdensome at least to some degree (Table 26). They therefore had compliance officers to ensure compliance. There was near unanimous agreement (96%) that the Insurance Act should be amended (Table 27).

Table 26: Regulatory Compliance

Description	Frequency	% of Responses
Very burdensome	6	27.3
Burdensome	7	31.8
Fairly burdensome	8	36.4
Not burdensome	1	4.5
Total	22	100.0

Source: Questionnaires

The suggested amendments were conversion of the office of Commissioner of Insurance to an independent regulatory authority 68.2%, allowing bancassurance and other distribution channels 50%, removal of the requirement to invest 20% of a company's admitted assets in Government securities (45.5%), the removal of restriction on transfers of the life fund surplus to the profit and loss account (27.3%) and relaxation of restrictions on foreign investment (27%). The abolition of composite licenses was not regarded as most important (9.1%) (Table 27).

Table 27: Suggested Amendment to Insurance Act

Suggested Amendment	Mean	Std. Deviation
Conversion of the office of Commissioner of insurance into an independent regulatory authority	4.40	1.09
Relaxation of restrictions on foreign investments	3.54	1.29
Removal of the requirements to invest 20% of admitted assets in Government securities	3.95	1.25
Allowing bancassurance and other distribution channels	4.19	1.07
Relaxation of solvency requirements	2.27	1.16
Abolition of composite licenses	2.45	1.40
Removal of restriction on the transfer of life fund surplus to the profit and loss account	3.23	1.44
Others	4.50	0.57

Source: Questionnaires

On the Retirement Benefits Act (RBA), 54.5% of the respondents agreed that the Act had slowed down the growth of pensions business for their respective companies, citing the onerous and cumbersome requirements, which they found to be uneconomical and expensive for small pension schemes (Table 28). 86.4% of the respondents agreed that the government should legislate for mandatory provision of group life insurance cover and retirement benefits for employees by employers (Table 29).

Table 28: Did RBA slow the growth of pension business for your company?

Response	Frequency	% of Responses
Yes	12	54.5
No	9	40.9
Missing	1	4.5
Total	22	100.0

Source: Questionnaires

Table 29: Mandatory provision of group life and retirement benefits

Response	Frequency	% of Responses
Yes	19	86.4
No	3	13.6
Total	22	100.0

Source: Questionnaires

82% of the respondents regarded the procedures for assessing tax payable on the profits arising from the life insurance business to be complicated (Table 30). This had resulted in 73% of the companies engaging the services of professional tax consultants for advice. The provision of insurance premium relief on life and education policies had not resulted in an increase in new sales of individual life insurance.

Table 30: Are procedures for assessing tax payable complicated or straightforward?

Response	Frequency	% of Responses
Complicated	18	81.8
Straightforward	4	18.2
Total	22	100.0

Source: Questionnaires

4.5.6 Human Resources

All companies except one had a designated Human Resources Manager (Table 31). This is a recognition of the important role of human resources in an organization's performance. Also, all companies sponsored their staff for professional insurance examinations such as CII, LOMA and CPA. They also sponsored the tied life insurance agents for the Certificate of Proficiency (COP) examination. However, only 22.7% of the companies sponsor employees for higher level academic and post-graduate training. Many companies have a performance based remuneration system, principally Christmas and cash bonuses. However, only one company has an Employee Share Option Plan (ESOP). Tables 31 to 36 show the human resource management practices by the industry.

Table 31: Do you have designated HRM in your company?

Response	Frequency	% of Responses
Yes	21	95.5
No	1	4.5
Total	22	100.0

Source: Questionnaires

Table 32: Sponsorship of employees for professional Insurance exams

Response	Frequency	% of Responses
Yes	22	100.0

Source: Questionnaires

Table 33: Sponsorship of employees for postgraduate degrees in local/overseas universities

Response	Frequency	% of Responses
Yes	5	22.7
No	16	72.7
Missing	1	4.5
Total	22	100.0

Source: Questionnaires

Table 34: Sponsorship of tied agents for COP exams

Response	Frequency	% of Responses
Yes	15	68.2
No	7	31.8
Total	22	100.0

Source: Questionnaires

Table 35: Performance based compensation system for staff

Response	Frequency	% of Responses
Yes	15	68.2
No	7	31.8
Total	22	100.0

Source: Questionnaires

Table 36: Type of Incentive Scheme

Response	Frequency	% of Responses
ESOP	1	4.5
Christmas Bonus	9	40.9
Cash Bonus	10	45.5
Missing	2	9.1
Total	22	100.0

Source: Questionnaires

4.5.7 Customer Service

Most respondents (81%) agreed that the economic recession in Kenya had negatively affected the persistency of their ordinary life policies at least to some extent (Table 37). It also emerged that most of the companies conducted regular

customer satisfaction surveys (68.2%), had a customer complaints handling system (82%), sent regular statements to their customers (59%) and had suggestion boxes (54%). 59% of the companies had undertaken a Total Quality Management Programme (TQM) but only 14% had undertaken an ISO 9000 certification programme. Tables 37 to 43 show some of the customer service responses by the industry.

Table 37: To what extent has recession affected the Persistence of your ordinary life policies?

Response	Frequency	% of Responses
Very large extent	9	40.9
Modest extent	9	40.9
Very small extent	2	9.1
Missing	2	9.1
Total	22	100.0

Source: Questionnaires

Table 38: Do you conduct regular customer satisfaction surveys?

Response	Frequency	% of Responses
Yes	15	68.2
No	5	22.7
Missing	2	9.1
Total	22	100.0

Source: Questionnaires

Table 39: Do you have a customer complaints handling system?

Response	Frequency	% of Responses
Yes	18	81.8
No	3	13.6
Missing	1	4.5
Total	22	100.0

Source: Questionnaires

Table 40: Sending statements to customers

Response	Frequency	% of Responses
Yes	13	59.1
No	8	36.4
Missing	1	4.5
Total	22	100.0

Source: Questionnaires

Table 41: Suggestion box

Response	Frequency	% of Responses
Yes	12	54.5
No	9	40.9
Missing	1	4.5
Total	22	100.0

Source: Questionnaires

Table 42: Have you undertaken TQM programme in the last 10 years?

Response	Frequency	% of Responses
Yes	13	59.1
No	8	36.4
Missing	1	4.5
Total	22	100.0

Source: Questionnaires

Table 43: Have you undertaken an ISO 9000 certification programme?

Response	Frequency	% of Responses
Yes	3	13.6
No	18	81.8
Missing	1	4.5
Total	22	100.0

Source: Questionnaires

4.5.8 Information Technology

Most companies had computerized their core business processes of ordinary life and group life underwriting (15 & 14 respectively), pensions (15), claims (16), payroll (20) and general ledger (20) (Table 44).

Table 44: Computerized Processes

Business Process	Yes	% of Positive Responses
Ordinary Life Underwriting	15	68.2
Group Life Underwriting	14	63.6
Pensions	15	68.2
General Ledger	20	90.9
Claims	16	72.7
Payroll	20	90.9

Source: Questionnaires

There was wide usage of personal computers and 90% of the companies had personal computers for their employees. The employees had adopted information technology tools in their jobs, in particular word processing, e-mails and spreadsheets. However, even though 95% of the companies had a branch network, the degree of internetworking between different branches was low with only 40.9% of the respondents having a Wide Area Network. Usage of E-Commerce was very low at 9.1% (Table 45).

Table 45: Usage of Information Technology

Function	Yes	% of Positive Response
Access to Personal Computers	20	90.9
Local Area Network (LAN)	17	77.3
Word Processing	22	100.0
Power Point	17	77.3
E-Mail	22	100.0
Spreadsheets	21	95.5
Branch Network	21	95.5
Wide Area Network (Internetworking)	9	40.9
Website	16	72.7
Transact business on the web (E-Commerce)	2	9.1
Teleconferencing	11	50.0
Videoconferencing	0	0

Source: Questionnaires

4.5.8 Competitive Strategy

The industry players did not pursue any one of the three generic competitive strategies of, overall cost leadership, differentiation or focus. They follow more than one approach i.e. they are "stuck in the middle". 19% of the respondents followed a differentiation strategy while 9.5% followed a focused strategy (Table 46).

Table 46: Competitive Strategy

Strategy	Frequency	% of Responses
We strive to create and market unique products	4	19.0
We focus on specific groups of customers	2	9.5
A combination of all of the above	15	71.4
Total responses	*21	100.0

Source: Questionnaires

* One company did not respond

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes and discusses the findings in relation to the statement of the problem and the objectives of the study. It also highlights the limitations of the study and suggestions for further research.

5.2 Summary of Findings

5.2.1 Changes in the External Environment

There have been many changes in the external environment. These changes have had an unfavourable impact on the life insurance industry. They include economic recession, liberalization, inflation, political uncertainty, HIV/AIDS, taxation and regulatory policies. The only favourable external environmental change has been in the area of Information Technology where computerization and telecommunications had resulted in improvement in business processes and customer service.

5.2.2 Strategic Responses

The industry has responded to these external environmental changes through such initiatives as new product development, development of new distribution channels,

diversification, organizational restructuring, investment in human resources, customer service improvements, adoption of Information Technology and lobbying the government through the Association of Kenya Insurers (AKI).

These strategic responses however lack depth. The new products developed are protection rather than investment oriented. The potential of Information Technology to improve business processes does not appear to have been fully tapped into, and the insuring public is not aware of the benefits of life insurance. The low level of implementation of such strategic responses as, better utilization of inputs, better employee motivation, industry awareness building activities, which the Association of Kenya Insurers recommended in 1998 is an indication of the level of inertia in the industry. The industry is not innovative.

5.2.3 Industry Attractiveness

There are structural weaknesses rooted in the regulatory and taxation framework which need to be overcome before the penetration ratio can increase. Such weaknesses include composite licensing, a weak industry regulatory framework and the taxation regime

The industry is an attractive sector. However, applying the five forces framework only the ordinary life sector emerges as the most attractive sector, while group life and pensions sector are not as attractive.

5.3 Recommendations

5.3.1 Industry Structure

The management of a life insurance company needs to continually reassess the organization's strategic direction. The most important strategic issue facing a life insurance company is the need to structure its business in a way that generates long-term value for its owners, employees, policyholders and other stakeholders.

The Insurance Act should be amended to prohibit composite licensing. Companies should be licensed either as non life insurers or life insurers but not both. The Life Insurance Council (LIC) of AKI should also be hived off AKI, to form a Life Offices Association of Kenya. This would allow a more focused strategic approach to the development of life insurance.

5.3.2 Marketing

Most of the life insurance products currently being sold in Kenya are the protection type endowment and funeral expense policies. However, the volatile economic environment requires products which are inflation-indexed as well as unit-linked products where the insured shares the investment risk with the insurance company. The industry should also develop new channels for distributing its products such as bancassurance and the Internet. Advertising, sales promotion, public relations and

other awareness building programmes should be undertaken at both individual company and industry level in order to create the necessary awareness on the benefits of life insurance and improve its image. With liberalization and the development of COMESA and the East African Community, companies should exploit the emerging opportunities by diversifying their operations outside Kenya. In other words the industry should be more innovative.

5.3.3 Investment Management

Life insurance companies should invest a portion of their assets offshore. To contain the negative impact of economic turmoil such as currency devaluations and inflation, insurance companies need to protect their balance sheets. The main challenge lies in setting aside sufficient reserves and having proper asset – liability management in place. A well diversified investment portfolio can help reduce interest rate and market risks. When all assets denominated in shillings lose value due to inflation and currency devaluation, offshore investments and reinsurance offer practically the only form of asset protection.

5.3.4 Insurance Legislation and Taxation

Since its enactment in 1984, the Insurance Act Cap 487 has undergone several amendments. It requires further amendment to give the Commissioner of Insurance greater autonomy to regulate the industry and to facilitate some of the other

recommendations in this study such as prohibition of composite licensing, offshore investments, and development of new distribution channels, removal of restrictions on the distribution of life fund surplus and relaxation of the cumbersome regulations. Currently the Commissioner of Insurance is a department of the Ministry of Finance. The Income Tax Act should also be amended to simplify the process of assessing the income liable to taxation.

5.3.5 HIV and AIDS Pandemic

When the first case of HIV infection was identified in Kenya in 1984, hardly anyone would have reckoned that this was the beginning of a public health catastrophe. In 1989 the President declared HIV/AIDS a national disaster. The debilitating effects of HIV and AIDS have taken a heavy toll on the social and economic life of the Kenyan people, sapping the country's strength for economic productivity and severely undermining the standards of living and the stability of the social system. Life expectancy has fallen sharply. As of July 2002, there were 2.2 million Kenyans who were already HIV infected, 1.7 million had already died with between 500-700 deaths due to AIDS per day. The number of AIDS orphans had reached 1.1 million. Life insurance companies should therefore respond to the HIV and AIDS pandemic in line with good corporate social responsibility practices without compromising their responsibilities to grow shareholder value. Although responses to the problem by the industry such as testing and exclusion clauses are not uniform, they have met with general disapproval from both the public, civil society and the government.

5.3.6 Mandatory Provision of Group Life and Retirement Benefits

The government should give consideration to amending the Employment Act to make it mandatory for employers to provide group life and retirement benefits. Apart from improving the penetration ratio of life insurance, it would provide a social safety net for bereaved family members and employees on reaching retirement age.

5.3.7 Human Resources Management

An insurance company is a combination of people and technology. The motivations, intellect, skill, experience, creativity and management talents of employees ranging from senior executives to front line workers are what matter in determining an insurance company's success. These individuals, working in coordination with each other are the factors creating value and resulting profitability for the organizations. The industry has done a commendable job in developing a pool of highly qualified staff at all levels in both formal education and technical training. The industry however needs to invest more resources in improving the image of the intermediaries, particularly the tied agents. To align the interests of employees and management with those of the shareholders, the industry should adopt incentive compensation programmes such as bonus schemes and Employee Share Option Plans (ESOP's).

5.3.8 Information Technology

Information Technology is driving change across all industries. It offers considerable scope for operational efficiency in terms of cost savings and improvement in the quality of service. The industry should deepen the utilization of information technology in its business processes. Internetworking through Wide Area Networks, data warehousing and E-Commerce should be adopted by the industry.

5.3.9 Competitive Strategy

According to Michael Porter, there are three potentially successful generic strategic approaches that companies can follow to outperform other firms in an industry. These are overall cost leadership, differentiation and focus. Individual insurance companies in Kenya do not pursue one clear generic strategy but pursue all three in combination; they are "stuck in the middle". Companies should endeavour to pursue one and not all the strategies to strengthen their strategic situation.

5.3.10 Industry Leadership

Leadership is the force that makes things happen. The Association of Kenya Insurers should provide greater leadership in ensuring that recommended strategic

initiatives which are designed to improve both the image of the industry and the penetration ratio are implemented.

5.4 Limitations of the Study

This study had various limitations. First, the length of the questionnaire. The questionnaire was long and it was therefore time consuming to complete. Second the sensitivity and complexity of the subject. Strategy and strategic management is a complex subject which goes to the core of the organization's business. Some of the responses to the questionnaire were therefore likely to be inaccurate. Finally, the data collection method. Some questions were not appropriate for a mailed questionnaire but would have been better handled through a structured one-to-one interview to facilitate probing.

5.5 Suggestions for Further Research

This study was a census focusing on all companies licensed to transact all classes of life insurance business. I would recommend a cross sectional survey on strategic responses by the major life insurance companies who control significant market shares or a census survey on strategic responses for any one of the three classes of life insurance namely ordinary life insurance, group life insurance or pensions.

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Appendix 1

NAMES OF COMPANIES LICENCED TO TRANSACT LIFE BUSINESS

NO.	NAMES OF INSURANCE COMPANIES	COMPOSITE OR PURE LIFE
1	American Life Insurance Company (K) Ltd.	Composite
2	Apollo Insurance Company Ltd.	Pure Life
3	Blue Shield Insurance Company Ltd.	Composite
4	British-American Insurance Company (K) Ltd.	Composite
5	Cannon Assurance (K) Ltd.	Composite
6	Cooperative Insurance Company Ltd.	Composite
7	Corporate Insurance Company Ltd.	Composite
8	Geminia Insurance Company Ltd.	Composite
9	Heritage A.I.I. Insurance Company Ltd.	Composite
10	Insurance Company of East Africa Ltd.	Composite
11	Jubilee Insurance Company Ltd.	Composite
12	Kenindia Assurance Company Ltd.	Composite
13	Kenyan Alliance Insurance Company Ltd.	Composite
14	Madison Insurance Company (Kenya) Ltd.	Composite
15	Mercantile Life & General Assurance Co. Ltd.	Composite
16	Old Mutual Life Assurance Company Ltd.	Pure Life
17	Pan Africa Life Assurance Ltd.	Pure Life
18	Pioneer Assurance Company Ltd.	Pure Life
19	The Monarch Insurance Company Ltd.	Composite
20	Trinity Life Assurance Company Ltd.	Pure Life
21	UAP Provincial Insurance Company Ltd.	Composite
22	United Insurance Company Ltd.	Composite

QUESTIONNAIRE

This questionnaire seeks to identify the various environmental factors that have favourably or unfavourably affected the life insurance industry in Kenya in the last 10-15 years and to establish how the industry has responded in order to remain competitive.

SECTION A

1. Name of Company _____
2. Name of Respondent _____
3. Respondent's job title in the Company _____
4. How long has the company been operating in Kenya? _____
5. What class of insurance business is the company licensed to transact?
 - Long Term business/only ()
 - Non Life business only ()
 - Composite business ()
6. Please check the classes of long term insurance business that your company transacts.
 - Ordinary life ()
 - Industrial life ()
 - Group Life ()
 - Pension ()
 - Bond Investment ()

SECTION B

1. Developments in the external environment can have a favourable or unfavourable impact on a business. Under each of the following identified broad external factors, please highlight the major **Economic, Political, Legal, Social** and **Technological** changes that in your opinion have favourably or unfavourably affected the long term insurance industry in Kenya in the last 10 years.

a. Economic changes

- a) _____

- b) _____

- c) _____

b. Political Changes

- a) _____

- b) _____

- c) _____

c. Legislative and Regulatory Changes

- a) _____

- b) _____

- c) _____

d. Social and Demographic changes

- a) _____

- b) _____

- c) _____

e. **Information Technology changes**

- a) _____

- b) _____

- c) _____

f. **Other changes**

- (a) _____

- (b) _____

SECTION C: STRATEGIC RESPONSES

(1) **Industry Structure**

(a) Looking at the current overall profitability of the life insurance industry in Kenya would you describe it as an attractive or an unattractive industry to investors?

Attractive ()

Unattractive ()

(b) Are the barriers for entry by new players into the life insurance industry high or low?

High ()

Low ()

(c) Is the intensity of competition among existing life insurance companies high or low?

Ordinary Life: High () Low ()

Group Life: High () Low ()

Pension: High () Low ()

(d) Comparing life insurance companies with their customers in ordinary life, group life and pension classes, is the bargaining power of customers strong or weak?

Ordinary life:	Strong	()	weak	()
Group life:	Strong	()	weak	()
Pension:	Strong	()	weak	()

(e) Comparing life insurance companies and the intermediaries (agents and brokers) is the bargaining power of the intermediaries strong or weak?

Brokers:	Strong	()	weak	()
Tied agents	Strong	()	weak	()

(f) Are there many substitute products which compete with the life insurance industry products?

Yes () No ()

(g) The penetration ratio of life insurance in Kenya is considered to be very low. On a scale of 1-5, 5 being the most important and 1 being least important, please rank the following as the causes of the low penetration ratio of life insurance in Kenya.

	Most Important			Least Important	
	5	4	3	2	1
Low levels of disposable income	()	()	()	()	()
Lack of government incentives to the insuring public	()	()	()	()	()
Lack of government incentives to investors in the sector	()	()	()	()	()
Lack of awareness of benefits of life insurance	()	()	()	()	()
Poor image of the life insurance companies	()	()	()	()	()
Poor image of the intermediaries	()	()	()	()	()
Other (please specify)	()	()	()	()	()
_____	()	()	()	()	()
_____	()	()	()	()	()
_____	()	()	()	()	()

(h) Do you agree with the suggestion that abolition of composite insurance licensing can increase the penetration ratio of life insurance by allowing companies licensed purely as life insurers to focus more on life insurance marketing?

Agree () Disagree ()

Explain

(i) In your opinion, would hiving off the Life Insurance Council (LIC) from AKI and transforming it into a Life Offices Association increase focus and the penetration ratio of life insurance in Kenya?

Yes () No ()

(2) **Organizational Restructuring**

(a) Have you undertaken any of the following activities in your company in the last 10 years

	Yes	No
Business Process Re-engineering (BPR)	()	()
Reduced staff (downsized)	()	()
Entered into a strategic alliance with another company	()	()
Divested from any line of business	()	()
Acquired any new companies/businesses	()	()
Dropped any products or product lines	()	()

(b) Have you outsourced any of the following functions? Yes No

Investment Management	()	()
Provision of office or proper security	()	()
Provision of office cleaning, repairs and maintenance	()	()
Payroll processing	()	()
Provision of office tea	()	()

Others (please specify)	()	()
_____	()	()
_____	()	()
_____	()	()

(3)

Marketing

New Products

(a) Has your company introduced new products or new features to existing products in the classes of life insurance business that you transact in the last 10 years?

Yes () No ()

(b) If you answered "Yes" to (a) above, please check the needs the new product(s)/features were primarily addressing?

- Inflation ()
- Investment return ()
- Protection ()
- Education ()
- Retirement ()
- Funeral expenses ()
- Other (specify) ()

(c) Does your company sell inflation-indexed life insurance policies?

Yes () No ()

(d) Does your company sell unit linked life insurance policies?

Yes () No ()

New markets

- (e) Have you opened new branches within Kenya in the last 10 years
Yes () No ()
- (f) Have you opened new operations/companies outside Kenya in the last 10 years?
Yes () No ()

Distribution channels

- (g) Other than the tied agents and brokers, have you developed new channels of distribution for your products in the last 10 years?
Yes () No ()
- (h) If you answered "Yes" in (g) above, please check the new distribution channels that you developed:
- | | | | |
|------------------|-----|---------------|-----|
| Bancassurance | () | The Internet | () |
| Direct mail | () | Telemarketing | () |
| Others (specify) | () | | |

Diversification

- (i) Has your company diversified its activities into other lines of business (not necessarily insurance)
Yes () No ()
- (j) Following the enactment of the Retirement Benefits Act, did your company set up a fund management company?
Yes () No ()

Divestiture

- (k) Has your company divested from a line of business, closed a branch or withdrawn a product from the market in the last 10 years?
Yes () No ()

(4) **Investment Portfolio**

(a) Please check the investment assets in which your company's life fund has been invested

Government Securities ()

Land & Buildings ()

Bank Deposits ()

Shares in Nairobi Stock Exchange ()

Policy Loans ()

Mortgage Loans ()

Commercial Paper (corporate bonds) ()

Offshore securities ()

Others ()

(b) If you have not invested any assets offshore, which of the following is the main reason for your not doing so?

Restriction by Insurance Act ()

Lack of investment expertise ()

Lack of knowledge of available overseas investments ()

All of the above ()

(c) Have you outsourced the management of your investment portfolio to a Fund Manager?

Yes () No ()

(5) **HIV and AIDS**

(a) Do you consider the reported reduction in the life expectancy of Kenyans due to HIV and AIDS a threat to the life insurance industry in Kenya?

Yes () No ()

(b) If your answer to (a) above is "Yes", have you revised your underwriting requirements in response to the HIV and AIDS pandemic?

Yes () No ()

- (c) Do you subject all applicants for ordinary life insurance policies to medical examinations or do you have non medical limits?
- All applicants are subjected to medical examination ()
- We have non-medical limits ()
- (d) Please indicate the range within which the free cover limit on your group life schemes falls?
- Shs.1,000,000 and below ()
- Between Shs.1,000,000 – 2,000,000 ()
- Above Shs.2,000,000 ()
- (e) Have you instituted any of the following measures with regard to HIV and AIDS in your company?
- | | Yes | No |
|---|-----|-----|
| (i) Exclusion clause | () | () |
| (ii) Additional (contingency) Reserves | () | () |
| (iii) Loading of premiums | () | () |
| (iv) Removal of premium rate guarantees | () | () |
| (v) Launched new products | () | () |
| (vi) Additional questions on applications | () | () |
| (vii) Lien Option | () | () |
- (f) Please rank from 1-3, with 1 being the highest, the class of life insurance business for which HIV and AIDS pose the greatest threat to the financial health of the life insurance industry in Kenya?
- Ordinary life ()
- Group life ()
- Pension ()
- (g) If enacted, will the proposed HIV and AIDS Prevention and Control Bill 2003 have a negative impact or no impact on the future growth of life insurance in Kenya?
- Negative impact ()
- No impact ()

(6)

Government Regulations/Legislation

(a) Do you find the compliant requirements of the various legal and legislative requirements very burdensome, burdensome, fairly burdensome or not burdensome?

- Very burdensome () Burdensome ()
- Fairly burdensome () Not burdensome ()

(b) Do you have a compliance officer who ensures that the company complies with all the legislative/regulatory requirements?

- Yes () No ()

(c) Please check your company's response to the recent government procurement procedures with regard to group life business from parastatals

- Lobbying brokers () Lobbying government ()
- Lobbying parastatal CEO's () Reduced rate quoted ()
- None of the above ()

Insurance Act

(a) Do you agree that the Insurance Act Cap 487 should be amended?

- Yes () No ()

(b) If your answer in (a) above is "Yes", please rank the importance of the following suggested amendments on a scale of 1-5, with 5 being the most important and 1 being the least important.

	Most Important		Least Important		
	5	4	3	2	1
Conversion of the office of Commissioner of insurance into an independent regulatory authority	()	()	()	()	()
Relaxation of restrictions on foreign investments	()	()	()	()	()
Removal of the requirement to invest 20% of admitted assets in Government securities	()	()	()	()	()

Allowing bancassurance & other distribution channels	()	()	()	()	()
Relaxation of solvency requirements	()	()	()	()	()
Abolition of composite licences	()	()	()	()	()
Removal of restriction on the transfer of life fund surplus to the profit and loss account	()	()	()	()	()
Please list any others					
_____	()	()	()	()	()
_____	()	()	()	()	()

Retirement Benefits Act (RBA) 1997

(a) Did the Retirement Benefits Act 1997 slow the growth of pension business for your company?

Yes () No ()

Please explain

(b) Should the government legislate for mandatory provision of group life insurance cover and retirement benefits for employees by employers?

Group Life: Yes () No ()

Pension: Yes () No ()

Please explain

Income Tax Act

- (a) Do you regard the procedures for assessing tax payable on the profits arising from the life insurance business complicated or straightforward?
Complicated () Straightforward ()
- (b) Do you use professional tax consultants to calculate and advise on the corporation tax payable?
Yes () No ()
- (c) Has the provision of insurance premium relief resulted in an increase in new sales of individual life insurance in your company?
Yes () No ()

Human Resources

- (a) Do you have a designated Human Resources Manager in your company?
Yes () No ()
- (b) Do you sponsor your employees for:-
- | | Yes | No |
|--|-----|-----|
| Professional insurance examinations (CII,LOMA,CPA etc) | () | () |
| Management Development Programmes | () | () |
| Parallel degrees programme in local universities | () | () |
| Postgraduate degrees in local & overseas universities | () | () |
| Other short term training programmes (IT, Customer Care etc) | () | () |
- (c) Do you sponsor your tied agents for Certificate of Proficiency (COP) Exams?
Yes () No ()
- (d) Do you have a performance-based compensation system for staff other than agents in your company?
Yes () No ()
- (d) If the answer to (d) above is "Yes", please check the type of incentive scheme that you operate
- | | |
|-----------------------------------|-----|
| Employee Share Option Plan (ESOP) | () |
| Christmas Bonues | () |
| Cash Bonus | () |

Customer Service

- (a) To what extent has the economic recession in Kenya affected the persistency of your ordinary life policies?
Very large extent () Modest extent () Very small extent ()
- (b) Do you conduct regular customer satisfaction surveys?
Yes () No ()
- (c) Do you have a customer complaints handling system?
Yes () No ()
- (d) Do you send statements to your customers?
Yes () No ()
- (e) If the answer to (d) above is "Yes", please indicate the frequency
Monthly () Quarterly () Half Yearly () Annually ()
- (f) Do you have a suggestion box?
Yes () No ()
- (g) Have you undertaken a Total Quality Management (TQM) programme in the last 10 years?
Yes () No ()
- (h) Have you undertaken an ISO 9000 certification programme?
Yes () No ()

Information Technology

- (a) Are the following processes/functions in your company computerized?

	Yes	No
Ordinary Life Underwriting	()	()
Group Life Underwriting	()	()
Pensions/DA Administration	()	()
General Ledger	()	()
Claims Processing	()	()
Payroll	()	()

- (b) Do you have a Local Area Network (LAN)?

Yes () No ()

- (c) Do you have branches in other towns in Kenya?
 Yes () No ()
- (d) If the answer to (c) above is "yes", are the branches networked to the Head Office and to each other?
 Yes () No ()
- (e) Does your company have a website?
 Yes () No ()
- (f) If the answer to (e) above is "yes", do you transact any business on the web (E-commerce)?
 Yes () No ()
- (g) Do most of your employees have access to a personal computer?
 Yes () No ()
- (h) Do your employees use the following facilities in their work?
- | | | |
|-----------------|---------|--------|
| Email | Yes () | No () |
| Spreadsheets | Yes () | No () |
| Word processing | Yes () | No () |
| Power point | Yes () | No () |
- (i) Do you have the following facilities in your company?
- | | | |
|-------------------|---------|--------|
| Teleconferencing | Yes () | No () |
| Videoconferencing | Yes () | No () |

General

- 1) From the statements below, please check the statement that best describes your company's approach to the life insurance market in Kenya.
- | | |
|---|-----|
| We strive to achieve overall low costs | () |
| We strive to create and market unique products and services | () |
| We focus on specific groups of customers | () |
| A combination of all of the above | () |

(11) In July 1998, the Association of Kenya Insurers (AKI) sponsored a strategic planning seminar on life insurance facilitated by a consulting firm. In your opinion, has the life insurance industry as a whole implemented the following strategic responses which were recommended by the seminar?

	Yes	No
Better utilization of inputs	()	()
Use of technology to improve efficiency	()	()
Better employee motivation	()	()
Better process management techniques	()	()
Industry awareness building activities (advertising, PR)	()	()
Lobbying the government	()	()
Self regulation	()	()
Industry-wide co-operation and investment	()	()

(12) Do you think the Government has created the appropriate regulatory environment for life insurance to develop in Kenya?

Yes () No ()

If your answer is "no", what specific incentives would you recommend that the government provides to the industry?

(13) Do you think the life insurance industry has been innovative in the following areas?

Developing new products	Yes ()	No ()
Improving service quality	Yes ()	No ()
Developing new distribution channels	Yes ()	No ()

Thank you very much for your responses

_____0_____

RECREATIONAL UTILIZATION OF OPEN
SPACES IN NAIROBI CITY, KENYA .

BY

PHILOMENA WAIRIMU MUIRURI

THIS THESIS HAS BEEN ACCEPTED FOR
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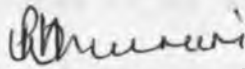
A thesis submitted in partial fulfilment for the degree of
Master of Arts (Urban Geography) in the Department of
Geography, University of Nairobi.

JULY 1990.

DECLARATION

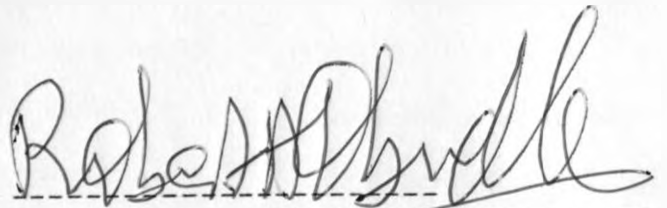
This is my original work and has not been presented for a degree in any other University.

BY



PHILOMENA WAIRIMU MUIRURI

This thesis has been submitted for examination with my approval as the University supervisor.



Dr. R. A. OBUDHO
DEPARTMENT OF GEOGRAPHY
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DEDICATION

This work is dedicated to my husband Mr. D. W. Muriithi for whom I am indebted for having provided both the moral and financial support during the course of my studies.

ACKNOWLEDGEMENTS

This work is a result of two years work on advanced urban geography. The urge to investigate urban recreation problems and policies was to fill the gap on this subject in Kenya's geographical literature. Many people have made this study a success and to them I owe sincere gratitude.

I wish to express my gratitude to the University of Nairobi for providing the scholarship which has enabled this research to be undertaken. The department of Geography at the University of Nairobi where this study was registered must also be mentioned for the academic atmosphere it offered for the entire period during which this work was underway. Special mention must be made of my supervisor Dr. Robert A. Obudho for his patience and encouragement which were most invaluable to me and have consequently ensured the success of this work.

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CHAPTER ONE

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ABSTRACT

There is mounting research on the general process of urbanisation in the less developed countries (LDCS). However little attention has been paid to the role of recreation in their urban centres. Research on urban recreation has been conducted almost entirely in the more developed countries (MDCS) urban centres. Here recreation is recognised as an important element in the lives of urban inhabitants hence its inclusion as a major land use.

On the contrary, most of the LDCs often give recreation low priority in the spatial planning of the urban areas. Nairobi as the capital city of Kenya lacks adequate recreational facilities compounded by the lack of exposure of the urban residents to the different recreational opportunities available. One such form of recreation is the use of open spaces which are available for recreation purposes. These open spaces are facing competition from the more economically challenging urban land uses such as residential, industrial, commercial, transportation among others.

This study examines the availability of these recreational facilities, their role and the factors influencing their utilization. Factors such as their location and spatial distribution exercise a significant influence in the use of these

facilities. Again the propensity to participate in outdoor recreation is also influenced by the social characteristics of the population such as age, sex, level of education, marital status, occupation, income, car ownership among others.

The fieldwork for this research was done during the months of November and December 1988 and January of 1989. The questionnaire, key informants, available records and personal field observations were the main data gathering tools. Four parks were selected for questionnaire administration to park visitors at random sampling. The data was assembled and analysed with the use of a computer. Hypothesis were formulated concerning the association between patterns of park visit (Y) and a number of independent variables (X) which included age, education, mobility, income and other variables.

The statistical tests used to determine the degree and direction of the relationships among the variables were the partial correlations, regression analysis using multiple and linear regressions and cross-tabulations. Use was made of the 't' and 'F' tests to test the significance of the results. In the findings, the characteristics of the participants showed that people from different social, economic and cultural backgrounds had different propensities to participate in outdoor recreation activities. The parks had different attraction rates with some having more visitors than others for different reasons. Passive recreation dominated in the parks while the major mode of travel to the parks was by foot.

Park visit is also influenced by factors such as the available leisure time, weather conditions, time/distances involved, the problems of accessibility and excessive demand. The demand for outdoor recreation facilities in the City of Nairobi (CON) cannot be overestimated especially as of now where these facilities are underprovided and there is a backlog of latent demand waiting to be satisfied. Participation in outdoor recreation is expected to rise as the impact of urbanization increases, which will influence changes in peoples attitudes and interest, and brings about higher education and income, increased car ownership which may affect future recreational preferences considerably.

In view of such conclusions, it is recommended that the present recreational facilities should be expanded and their quality improved. Cost sharing should be introduced to improve the management and maintenance of these parks, through introduction of chargeable activities in the parks.

Spatial imbalances of the distribution of the parks should be adjusted by locating the new parks in areas where there are more concentrations of population such as the low income residential areas. It is important to maximise the utilisation of the existing recreational facilities within the study area and at the same time create new parks for example, along the Nairobi River, on the waterfronts such as the Nairobi dam and also exploit the forests (Karura and Ngong) for their potential as recreational resources.

Recreational spaces need to be well planned ahead of the

expansion of the City of Nairobi and it is recommended that appropriate policy guidelines and research work be undertaken to necessitate provision of adequate and well managed recreational areas. This will go a long way in not only providing this most essential service to the urban population but also ensuring a good urban environment and retaining the status of the 'Green City' in the sun. To achieve this, requires a more pragmatic approach amongst the planners, the policy makers, the politicians and the public of City of Nairobi.

CHAPTER ONE

1.1

INTRODUCTION

Recreation is any form of activity in which an individual engages in from choice because of the personal enjoyment and satisfaction which he or she receives. Recreational activities are very diversified in nature and basically involve activity be it physical, mental or emotional and has no single form as the range of activities which people enjoy during leisure is almost limitless. Recreation is universally practised and sought and can take place in a variety of settings; it can be organised or unorganised and can be enjoyed alone or in groups. It can be classified as active or passive. In active recreation people participate directly in the activity for example, in sports such as football while spectators at such an event would engage in passive recreation. Far from being an alternative to work, recreation pre-supposes the existence of work so as to provide a contrast or compliment to it.

It performs three main positive functions in an urban society;

- a) It provides relaxation both mentally and physically from work and other necessary chores.
- b) It provides entertainment as an antidote to the boredom and repetition that are often involved in work and in personal and domestic chores.
- c) Finally, recreation provides a means for personal and social

development by allowing the individual to develop along lines which may contrast, significantly with the often restrictive thoughts and actions that work and other chores may permit.

Therefore, recreation is participation, in it's broadest sense in any pursuits other than those associated with work and necessary tasks of a personal and social nature, which a person undertakes freely.

The term recreation is usually associated with the use of the term leisure. Leisure is free time over the use of which a person may exercise choice. Recreation is then the use that is made of this time.

There are basically two types of recreation activities. There are indoor activities that take place in build-up environments and outdoor recreation activities that are typically performed outdoors. Outdoor recreation activities are of concern in this study. They are numerous activities that can be performed in outdoor areas. Burton and Noad (1969) have classified them into three main groups namely:

1) The first is user-oriented areas which are of special concern in studies of urban recreation facilities and include such areas as parks and children's playgrounds. Their most important characteristic, is ready accesibility to users. Such areas are often small and their physical characteristics are not too demanding.

2) The resource based areas are at the other extreme. Their dominant characteristic is their outstanding

physical resources such as mountains, coastlines and lake shores. They usually lie at considerable distances from concentrations of population and therefore, involve considerable travel. Such areas are usually large units occupying large tracts of land.

3) Finally, there are the intermediate areas that lie between these extremes. Both geographically and in terms of use, they are well located to users and visits to them involve less travel time and include such facilities as game parks, water reservoirs etcetera.

This classification is not mutually exclusive as outdoor recreation areas of various sizes, location and characteristic form an inter-related system. This study is mainly concerned with user oriented recreational resources in the form of outdoor open spaces and especially public parks. Outdoor recreation activities are of particular significance geographically as they are diverse in their nature and scope and generally involve the use of large areas of land or water which are often in short supply in urban areas.

Leisure is becoming an increasingly important part of peoples lives as more free time and greater prosperity enables people to extend their free time activities. An increasing urban population that is more mobile will place a heavy demand on many outdoor recreational facilities hence the emergence of recreation as a major element in both urban and rural planning. This study only refers to a single facet of an individual's recreation experiences in the use of open spaces. The use of parks is one

outlet for the available leisure time. Today in the society, there are excessive pressures and strains of modern working conditions that can lead to stress conditions, mental illness among others. Studies have shown that the hectic life similar to that encountered in most urban centres of the size of Nairobi and bigger does not only adversely affect the people's behaviour but also their biological and mental well-being.

There is therefore, a need to place the role of recreation in its proper place among other basic life interests for the individual and society. As more and more people become urbanised recreation will become important in that man needs it for its own sake as a valuable element in a full rounded life and as an escape from the daily routine. Recreation has an important role to play in counteracting the monotonous and boring characteristics of many jobs.

1.2 STATEMENT AND NATURE OF THE RESEARCH PROBLEM

Recreation in Nairobi takes various forms. There is indoor entertainment such as cinemas, discohalls, bars and restaurants, arts, theaters, etcetera and there is outdoor recreation in open spaces such as parks which can be private, commercial or public and are designated as recreational facilities. Parks are important in

that they occupy land that can be used for other developments. In most cases it is central land that has a high profit margin. In MDCS, recent trends show that land devoted to open spaces is experiencing a reduction in size due to increasing pressures on urban land resources and competition in land use.

The demand for more urban recreation facilities in Nairobi and in other major urban centres in Kenya cannot be overemphasised. It is fast growing as evidenced by overcrowding in the few existing recreational areas and children playing on the streets at the risk of accidents especially in the estates.

Kenya can learn from the mistakes made by the MDCS in the provision of parks. There is a need to plan for adequate provision of parks and to expand the existing parks to reduce overcrowding and to cater for the ever increasing urban population. The supply of land is fixed but the population is growing and the planner is faced with the choice between alternative land policies. Opportunities must continue to be provided for outdoor recreation within the urban milieu but increasing pressures on urban land resources will necessitate precise objective arguments for the presence, location, and design of an open space if recreational land is to withstand competition from residential, commercial and transportation demands. Planning should also aim at overcoming constraints upon people seeking opportunities for leisure by overcoming deficiencies on the basis of demand and bearing in mind the

particular requirements of all sections of the community, young and old, active and handicapped, car owners and non-car owners between the rich and poor. The present research intends to fill the gap in the existing knowledge about the public's taste and preferences as they relate to the use of parks as a form of recreation. Balmer (1973) concluded that the function of the park is often not understood by planners. Park facilities play a range of roles on the individual visits experiences. One facility may perform different roles for different people. Thus it is important to provide a park whose role and function is considered in requirements of the local population.

Locational aspects of these parks are also important from the point of view of accessibility to the users.

There is a need, therefore, to see if the parks are balanced in their spatial distribution. A small park well placed and equipped sympathetic to the surrounding environment may serve a larger population better than a park ten times the size but, badly placed and equipped. Again participation in leisure activity is to be the provision of an environment to allow such activities to take place.

The study will also concern itself with the legislation that protects the provision of these parks and the by-laws that govern their use to see if there is any misuse and abuse of the parks. At the same time the study will look into the standards, management and maintenance of parks.

Testing management views on these issues will be necessary since

differences between their views and those embodied in subsequently adopted policies may require explanation.

A persons demand for recreation has been found to be largely determined by personal circumstances (Out-door Recreation for America 1962). The use of parks can be linked to the cultural and social and economic characteristics of the user. These factors are ethnic group, age, income, level of education social class sex, marital status, mobility that influence leisure time. As some of these factors change, it becomes possible to predict at least in general terms how use of the parks will change. Studies in the MDCS have indicated that demand for recreation is increasingly positively covarying with increased education, income, car ownership, urbanisation, reduced working hours and days of most of the urban employees. The higher the education of the individual and the higher his social- economic group, the more recreational pursuits he will be engaged in and the more diverse his recreational experiences will be. Changes in education and social structure are having a marked effect on recreation. It is therefore important to see if this is true in the City of Nairobi. There is also the question of facilities to make proper use of them, such as time available, distance involved and the associated problem of accessibility and excessive demand.

The City of Nairobi offers conditions that encourage more demand for recreation. The city has a multi-racial population of

approximately 1.5 million (1988), with an average annual population growth rate of 6.0 percent and is estimated to reach 3.4 million by the year 2000. It also has a high rate of literacy with two thirds of adults having at least secondary school level of education.

Most of the city's inhabitants are within the range of 24-45 years. This is the active age group that pursue recreational interests which are most diverse and intense. The income level is generally increasing and coupled with the recent Government of Kenya (GOK) reduction of working days from 6 to 5, majority of the urban employees now have more leisure time.

This large increase in population and its characteristics must generate a higher demand for outdoor recreation. The concept of demand in recreation is almost synonymous to consumption in respect to recreation facilities. These public parks are available for general use at no direct costs. To the user there is no fee or charge. Therefore, changes in consumption will reflect primarily changes in supply of the existing facilities. Clawson and Knetch, (1974) have shown how an understanding of present demand and the manner in which they are changing over time has become of immense importance in recreation resource planning and policy formulation.

The volume of demand for each park need to be known in order to realise the adequacy of present provision and probable future requirement. The interest in this study is with supply and demand

and particularly with the interrelationship between them. The purpose will be to find ways of measuring and projecting rates of use of recreation facilities given certain assumptions about their availability and the freedom to use ones leisure time in their own choice.

Finally the research centres on the general role of parks as a form of recreation in Nairobi city. How do the visitors to the parks see its use and their attitude towards these parks.

1.3 JUSTIFICATION

In Nairobi, much of the recreational literature work is mainly on recreation in the residential areas with issues such as provision of community centres and playgrounds, emerging as major recommendations. Parks are important as facilities for outdoor recreation but as yet their role has not been properly understood. They can efficiently be used to alleviate the shortage existing for recreation outlets and they are also an important land use.

The City of Nairobi is fast developing with more land being expanded and utilised for such uses as commercial, residential, industrial, transportation and yet there are very few plans proposing the opening of more land for recreation purposes

especially in form of open spaces such as parks. The present existing parks are few and they are not efficiently utilised, thus they are inadequate for the increasing population in the city. There is therefore a need to plan for more parks and this study is important in that it intends to bring out the role of parks in the urban areas and their importance as a form of outdoor recreation. Open space must be planned recognizing its total role in the urban community and primarily for the satisfaction of passive or active recreation demands.

The study attempts to analyse and place in perspective the survey undertaken at various recreation parks in the City of Nairobi. The research was designed to augment and update existing information on patterns of park visit by the residents as currently little attention has been paid to this aspect.

Much of the recreation planning being attempted by the Nairobi City Commission (NCC) can be described as facility based rather than 'people based'. One of the problem is that planners have very little 'people based' information - that is ; they know a lot about supply but very little about demand. Again even after a park has been established there is little evaluation of its success eventhough evaluation should not take place in isolation. One park may be successful because it compliments the facilities of another park in the same area so minimising conflict between those who need a noisy active environment and those who want peace and quiet.

The research aims at getting such information together. The study will bring out users and non-user views, the planners and administrators options on the role of parks and such information will guide decision makers on suitable policies to adopt. As yet no such intergrated information is available. Open spaces provision should be based on peoples attitudes and the resulting common options and policies identified, could help to form the basis for guidelines to planners. Such information will improve the services to existing users and will also attract new users. Policies might be designed to meet needs in terms of the nature of services offered. For example, if there is a demand for increasing the social element, refreshment facilities might be introduced or the parks physical appearance might be renovated to the ideal image of actual or potential users.

Again there is a need to look at the spatial distribution of these parks within City of Nairobi. Examining their location in relationship to the population distribution will show if the parks are easily accessible from the major residential areas or are inaccessible to most of the potential and existing users. Such information can help correct the situation by aiding planners in getting the best location for future parks.

The image of the country is mirrored by its national capital. This is quite true and therefore, for aesthetic reasons these are valid justifications for the provision of open space in our capital city. Nairobi as the capital city houses government ministries, representatives from foreign countries, seats the

headquarters of UNEP and has regional offices for the other United Nations Agencies. It has foreign and national corporations and is host to many tourist attractions. There is therefore the need to make it an attractive city popularly known as 'Green City in the Sun' through planning that caters for green open spaces well maintained that will be a refreshing scene from the already built up environment.

1.4 Operational Concepts And Definitions

Recreation consists of a broad spectrum of leisure time activities generated as a result of many individual decisions and personal preferences. One aspect of it is outdoor recreation through the use of parks. In this research various concepts of recreational geography will be used and they need to be defined in order to avoid the confusion there in. Recreation is not easily defined but in this context it is taken to mean human activities outside those in which he engages for his livelihood. It covers, broadly, any pursuits taken up during leisure time other than those to which people are normally highly committed. Recreation will, therefore, be participation in its broadest sense in any pursuits other than those associated with work and necessary tasks of personal and social nature which a person undertakes freely. Visitors to any of the parks in Nairobi will be assumed that they are there for recreation purpose.

The identification of recreation activities is in many respects subjective, but they can be grouped into five broad categories, namely,

- a. Those taking place in and around the home (watching television, listening to music, reading books gardening;
- b. Activities with high social context (entertaining, drinking and or eating out in bars and restaurants.
- c. Cultural and artistic pursuits i.e. visiting theatres, arts exhibitions, concerts.
- d. Active (physical recreation) pursuits such as sports (football, swimming, golf, hockey).
- e. Informal outdoor activities (picnicking, walking, sight seeing).

Nairobi residents participate in all the above recreation activities. Consequently, urban parks and other recreational areas of the city should be designed to fulfil the many needs of the users.

Outdoor Recreational Spaces refers to the public outdoor parks for passive and or active enjoyment.

Outdoor Recreation: These include recreational activities outside buildings. They may be classified into:

- a. Daily recreation, essentially using urban park facilities for

short periods during the day (lunch break) or after work or during weekends. This is more appropriate considered as part of urban planning.

b. One - day recreation including excursions to the fringes of urban areas or farther into the country within easy reach.

Recreational facilities will be taken to mean any development on the land being used as a park availed with the intention of encouraging or facilitating the use of that park.

Leisure, is used to refer to free time, that is time over the use of which a person may exercise choice. Recreation is then the use that is made of this time.

Open Space, the term is used to refer to the land left vacant and not developed within the city boundary and designated as a park for aesthetic reasons to break the monotony of the concrete structure and to be used for recreation purposes. The study considers only the public open spaces as opposed to the private and commercial open spaces.

Supply is taken to refer to available facilities for outdoor recreation.

Urbanism is a concept used to refer to all aspects political economic, social among others of the urban way of life.

Urbanisation is taken to mean the movement of people from rural to urban places who engage in non agricultural activities and also change their lifestyle from rural to urban ways of life and

its associated values, attitudes and behaviours.

City is essentially a political designation, referring to a place governed by some kind of administrative body.

Urbanised area is taken to be the built up areas, where building, roads and other urban land uses predominate.

Tourism: overlaps with recreation as way of using leisure and with other activities involving travel. A tourist is a temporary visitor staying at least 24 hours or overnight in the country or place visited whose journey is for the purpose of:

- a. Leisure (holiday, recreation, sport)
 - b. Business (family, mission, meeting, health, study or religion).
- For the purpose of this analysis, it is necessary to consider both foreign and domestic tourism.

Nairobi is visited by all the above categories of tourists. There are frequent international and national conferences. These foreign tourists visit the parks such as Uhuru Park, City Park and the Arboretum within the city. Again visitors and students from the countryside frequently visit Nairobi for various purposes including viewing wildlife in the Nairobi National Park and the animal Orphanage. Nairobi's position and its good communications network ensures that visitors and especially tourists make it the beginning and departure place for all their trips in the country.

Demand for Recreation: Demand is an economic term used to refer

to a relationship between quantities and price but will in this study be used to mean consumption in respect of recreation facilities, - that is the number of people who visit an urban park and the distance travelled to this parks.

1.5 OBJECTIVES

The objective of this study is to investigate the general use of public outdoor recreational resources in the city of Nairobi;

1. Look at the socio-economic factors of the park visitors and how they influence leisure behaviour.
2. Look at the physical attributes of the parks, the recreational facilities available, their standards and management.
3. Look at the present supply of parks, their distribution, and the future planning requirements with reference to the growth and spatial planning of Nairobi city.

1.6 HYPOTHESES

In connection with the issues under investigation and the major objectives advanced above, this study advances two major hypotheses (or assumptions) namely that:

a) Social and economic characteristics have emerged as major factors that influence park visits.

H₀ - There is no significant relationship between socio-economic characteristics and park visits.

H₁ - Alternative.

b) Physical attributes of the parks play an important role in attracting visitors to a particular park.

H₀ - There is no significant relationship between the physical characteristics of a park such as location, accessibility, distance, attractiveness and the rate and frequency of park visitors.

H₁ - Alternative.

1.7 THEORETICAL FRAMEWORK

What is envisaged is a situation where in a defined area there are a certain number of existing facilities of a given type. The body responsible for the provision of this facility knows the location of existing facilities for those it owns and for others it does not own. It is prepared to build new facilities or expand present ones if this is thought necessary.

The first requirement is to understand the existing situation thoroughly. This can be represented diagrammatically as in figure . This represents an administrative or planning area in which there are a given number (N) of facilities. All of these facilities may not be owned by the local authority concerned, but they must all be located and taken into consideration. Thus, for example, a local authority will not necessarily own all parks within its area, but it cannot plan new ones without taking private clubs into consideration. This identification of the location of existing facilities represents the first gap in the knowledge concerning use of parks in recreation. In this study the simplifying assumption is made that only parks from within the administrative area are under consideration. Equally it is assumed that people within the planning area cannot use facilities outside it. These assumption can later be removed and it is then necessary to examine patterns of use of the park facilities, and try to determine how the introduction of new facilities will affect ~~these~~ patterns.

Within the planning area, there will be a given population some of whom will make use of the facilities and some will not. And of those who use the facilities some will use one particular facility and some will use another while others may use several. It would be important to know which are the factors that attract one to a particular facility. These relevant factors can be divided into two groups: Supply consideration and socio-economic factors.

In the closed system postulated above if there were no parks

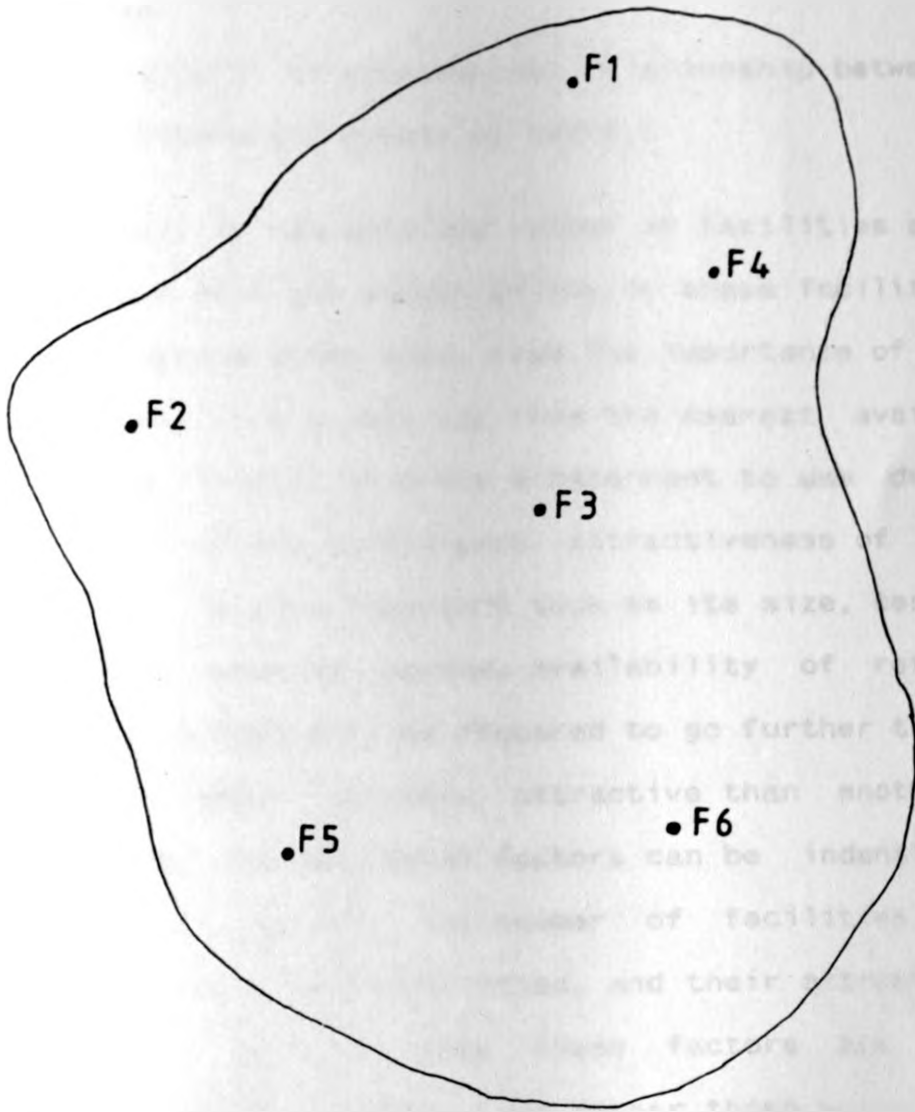


Figure 1 : The distribution of recreation facilities in a hypothetical planning area

then nobody would visit them. But if the parks are many or they are increased then the number of park visitors would also increase

(See figure 2. on hypothetical relationship between number of park visitors and number of parks.)

Supply is not only the number of facilities available in the area but also the accessibility of these facilities in relation to the people using them, thus the importance of their location. If people live a long way from the nearest available facility, this is likely to prove a deterrent to use depending on the mobility of the participant. Attractiveness of each individual facility is also important such as its size, car parking space, shelters, sitting spaces, availability of refreshments among others. A user will be prepared to go further to make use of a facility which is more attractive than another. To sum up therefore, three casual factors can be indentified under the heading of supply, the number of facilities available, the location of these facilities, and their attractiveness. It is important to note that these factors are not only the characteristic of supply, but rather those which directly affect demand for or use of facilities.

Socio-economic factors relate directly to the population. The way in which age, sex, education, class, income and so on affect the likelihood of a person engaging in particular types of activity should be discussed. Such characteristis are all factors which will tend to affect a persons desire and ability to participate in given activities.

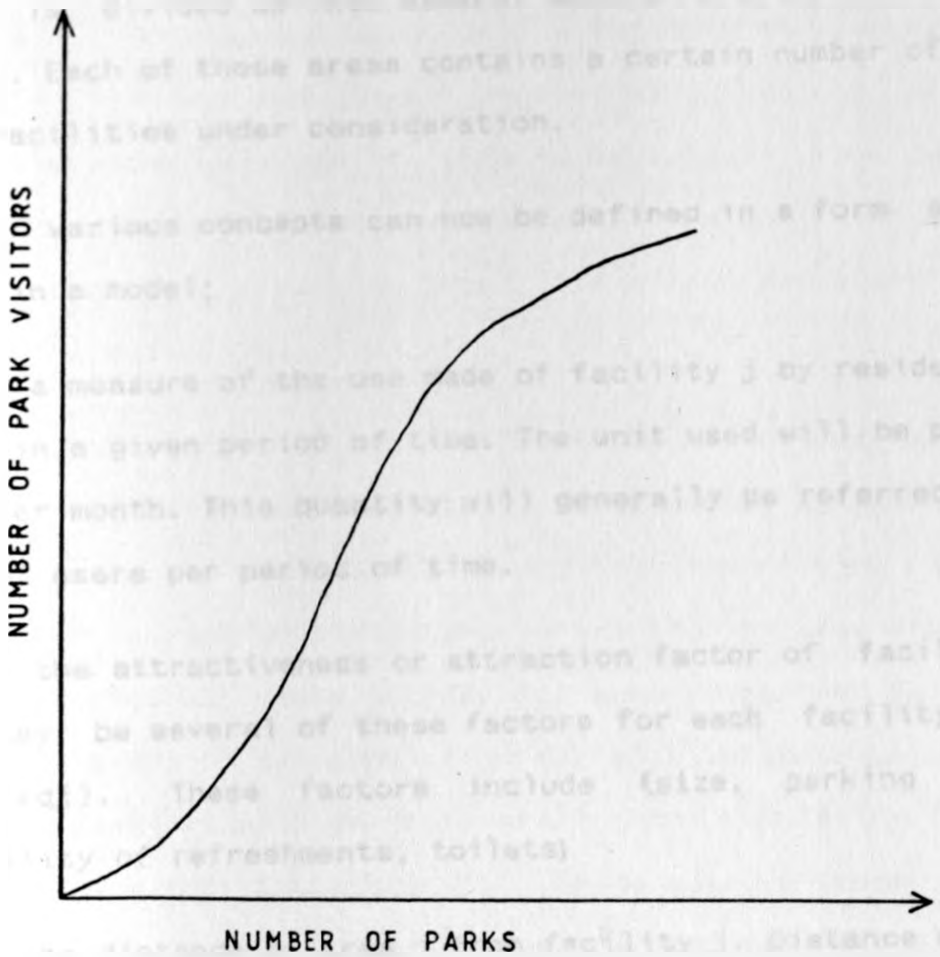


Figure 2 A hypothetical relationship between number of park visitors and number of parks.

To aid in formalizing the above concepts, the study area (Nairobi) is divided up into several smaller areas numbered from 1 to N). Each of these areas contains a certain number of users of the facilities under consideration.

These various concepts can now be defined in a form suitable for use in a model;

X_{ij} : is a measure of the use made of facility j by residents in area i , in a given period of time. The unit used will be person - visits per month. This quantity will generally be referred to as number of users per period of time.

A_j : is the attractiveness or attraction factor of facility j . There may be several of these factors for each facility (A_{1j} , A_{2j} ,.... A_{qj}). These factors include (size, parking space, availability of refreshments, toilets)

D_{ij} : is the distance of area i from facility j . Distance might be measured, in kilometres as the 'crowflies' or in terms of time taken to travel from that area to the park.

E_i : represents one or more socio-economic characteristics of the population for example age, level of education.

P_i : is the resident population of area, i .

There are assumed to be N facilities and n zones in the administrative (planning) area.

X_{ij} : is the dependent variable whose value depends on the value

of the other variables. Thus, the more attractive (A_j) a facility is, the more people will use it, or the more intensively they will use it. The farther away (D_{ij}) a facility is, or the less accessible it is, the fewer people will use it or less intensively they will use it. This is because of the deterrent effect of distance - and inconveniences of overcoming it and because at greater distances people are often less aware of the existence of a facility.

The socio-economic structure of the population (E_i) will also affect participation rates so that, for example, an area with a lot of old people will, other things being equal tend to have fewer active recreation pursuits (sports) than an area containing a high proportion of young people. For some recreation activities the income levels of the population may also be important, their education level as well as the overall total population (P_i) of the area. The aim of the study will be to measure these factors in particular situations to find out how they are related in a quantitative way.

The object^e is to produce a system whereby it can be said that if an area with given socio-economic and population characteristic (E_i, P_i) is a known distance, (D_{ij}): from a facility with an attraction factor (A_j), then it is possible to determine the number of people (X_{ij}), who will use that facility.

Once it is possible to predict using this model, Then it will be possible to make local decisions about the location and appropriate size of new parks.

The aim of carrying out a review of related literature here is to evaluate and reveal valuable aspects that are of interest to this particular study. The review examines the weakness of existing similar studies and the gaps left out and have not been filled, such that the intended study will not duplicate what has already been done through research. In this way it will instead add to the knowledge available and make comparative studies more interesting. It will also introduce new facts, ideas and other theories on this area of research.

In most urban centres of the MDCS, urban recreation and tourism have received relatively reasonable attention over centuries. Urban communities, large and small make plans for urban recreational areas and facilities (Patmore, 1971). Numerous textbooks and research reports exist on the subject recreation.

Much of the related literature in regard to outdoor recreation is still from the MDCS and not much has been done in LDCS. In the former countries recreation is recognised as an important element in the lives of urban inhabitants, hence its inclusion as a major land use in the urban centres. Britain was a pioneer in the public open space movement of the nineteenth century but it is now realised through research how little is known about the role of open spaces and recreational land in the

urban environment. On the contrary, most of the LDCS often give recreation low priority in the spatial planning and development of the urban areas and Nairobi is no exception, (Maina 1982).

Supposedly economically lucrative programmes have often guided goal formulation and implementation at the expense of those programmes perceived as less economically viable. Open spaces for recreation make little appeal to the cost benefit analysts in the various urban centres. They often pay no direct rates, they are expensive to acquire, landscape and to maintain. This secondary consideration of recreation facilities is demonstrated not only by the inadequacy of recreational facilities within the neighbourhoods and estates but also by the lack of exposure of the urban residents to different touristic opportunities within most of our towns. Their emphasis has tended to be placed on the supposedly economically challenging urban land use programmes such as residential housing, industrial and commercial.

As the demand for outdoor recreation grows, more pressing questions will be asked about the relative merits of spending increasing amounts of money on recreation rather than on the many alternatives available (Smith, 1979). The case for recreational facilities is made more complex by the fact that their utility cannot be economically quantified. Given housing and recreational needs for example, under budgetary constraints what gets first priority are likely to be the housing planners who can produce statistically convincing arguments like the number of squatters in the city. While the recreational planner due to lack of

available statistics cannot effectively advance his argument. The situation of urban recreation is worsened by failure of other basic services such as health, housing, sewerage, water and education to keep up with urban requirements.

But with outdoor recreation gaining importance in the urban society, economists are of the opinion that the benefit of recreation need to be measured in some way and also with the cost of providing the recreation facilities. The benefits of recreation can be expected to be related to the demand for the facilities. Clawson (1959) showed that it is necessary to measure present demand, predict future demands and then to associate with the demands a measure of recreation benefits.

Nairobi is rapidly becoming more urbanised both in terms of size and in its population. Some physical manifestation of these fast urbanisation rates are increasingly becoming apparent such as overcrowding, unemployment, increase in number of slum and squatter settlements, drug abuse, pollution and family disorganisations, among others. Consequently, there are limited recreational areas. The few existing are inadequately planned and poorly managed. Most of them lack proper facilities and are located far from the major residential areas of the urban centres.

Many of the open spaces consist primarily of parking lots, dumping grounds and vacant land, most of which are infact undeveloped plots meant for other land uses. In some estates, residents in desperate need for recreation have turned some of

the open spaces into play - fields. Many people spend a long time in bars, perhaps, due to lack of well provided outdoor recreation. Children so often have no alternative but risk being run over by vehicles as they turn roads into play grounds. Yet Nairobi city has enormous recreation opportunities within it and in its immediate environs. Nairobi contains the world reknown Nairobi National Park and affiliated Wild Animal Orphanage both of which are hardly mentioned when the city's growth and spatial planning is discussed. The city has certain potentially attractive areas such as the Nairobi river banks and other water fronts like the Nairobi dam which have not been exploited as yet.

Proper urban planning in the physical and social sectors should fully acknowledge the indispensability of open green spaces and encouragement in activities other than work. Balmer (1971) stressed that the latent function of all urban space is to provide the user with a set of physical, social and psychological satisfaction such as those derived from active and passive recreation and the appreciation of ones urban milieu.

In his defence for ample recreational space for all ages in all urban environments, Lederman (1959 p.6) concluded that

"Play is of decisive importance for the psychological development and the maturing of man. The consequences of insufficient possibilities for active and creative play clearly show results such as poor imagination, nervousness and instability of children, waste of spare time, craving for entertainment, aggressiveness of many teenagers"

He observed that man clearly needs to associate with nature in the process of his self-recreation. Man must have contrast, change and challenge. Recreation activities not only give man the ability to cope up with environmental stress but also allows him to exercise his power over elements like seas and mountains at his own pace. Here, play is seen as having a vital role particularly in child socialisation as part of a learning process, and also as a source of satisfaction of achievement and self - realisation. To a worker particularly in the urban areas, recreation is an important element in many ways, it will provide a means of relaxation for him and with relaxation he will feel energised, and re-created.

Studies also have shown that the hectic life similar to that encountered in most cities, of the size of Nairobi does not only adversely affect the peoples behaviour but also their biological and mental well - being. The importance of recreation in human life is perhaps best summarised by the following quotation.

"Recreation is not a major secondary matter in the health of an individual or the health of a nation, not a matter of something you do in your activity that you prescribe for patients so - called free time. We cannot relegate recreation to a position of secondary importance". (Band-Bouy 1977).

Man needs to recreate. Recreation activities not only give human being the ability to cope with environmental stress but also provide them with long term health benefits. Provision of

well planned areas also help in maintaining a good environment and in addition, it offers educational and aesthetic opportunities. If properly organised, recreational pursuits can generate enormous income. All these benefits of recreation can be realised in Nairobi.

Tankel (1970) writing on importance of open space in the urban pattern recognised four functions of open spaces; namely for productive, ornamental, protective and recreation purposes. He maintains that open spaces is not a question of how much land is to be allocated to recreation, but of where in relation to development that is the buildings and the people in them. This research in this regard intends to analyse how far the existing parks are spatially located and distributed in relation to the residential areas. Location is important in that once an urban park is located far from centres where population is concentrated then distance becomes important as a factor influencing the use of the park.

Veal (1974) in his study on environmental perception and recreation notes that participation in recreation is as a result of choice influenced by personal and facility factors and others which are less tangible. He criticized the fact that many open spaces are often planned on the basis of standards that is, so many acres per so many people. Whereas the criteria should not be the amount of open space but its role and function in relation to the local population. In the city of Nairobi with its varied population it would be expected that the parks have many roles they play to each individual.

Planning, management and provision of urban recreational areas and facilities in most of our urban areas is primarily the responsibility of the Government of Kenya and the local authorities.

In Nairobi most of the recreational parks are provided and managed by the central government and the NCC (currently the city commission). There are also a number of recreational areas owned by parastatal and private organisations. Usage of those provided by the central government and the city commission except for sports centres and stadiums, and for certain specific facilities within some of the recreational areas such as boating in Uhuru park, are basically free and open to the public. The usage of the privately owned ones is in most cases restricted to members only.

White et al (1948) in drawing up the first master plan for the Nairobi city noted the importance of open spaces. This importance grew with the mounting intensity of modern industrial and commercial life. Therefore, towns must preserve adequate open spaces. They observed that open spaces were more than mere preservations which needed conscious treatment, landscaping and utilisation for enjoyment. The early parks were planned on basis of races mainly for the European, Asian and the African but with independence race restrictions were removed. However, with the current population increase that has more than trebled since then, the existing parks may not meet the demands of the population and, therefore, there is need to plan for more land to be allocated for recreational purposes, while the existing parks

should be well preserved.

The failure to plan for provision of social facilities is one of the many criticisms levelled against the NCC. In Kenya, post-independence legislation and development in planning procedures did much to increase the abilities and power of local authorities to plan. But their abilities and powers to provide facilities were less fully developed partly because of the shortage of resources and the low priority given to recreation compared with other local authority concerns such as housing, education, health, and transport among others. In addition to direct provisions, they can influence provisions by aid to voluntary associations and in a rather different way through their planning powers. Probably the most important point to note in relation to local authority powers is that they are powers and not obligations. The importance of planning for open space is that the acquisition of open space was only the beginning of the process and acknowledged that constant vigilance would be necessary to prevent the ultimate development of the areas. The land should be used as intensively as possible without seriously modifying the environment. But today, increased requirements for the growth of Nairobi city has caused untold impacts on the recreation areas.

In another study in the Town Planning Review (1976) on recreational management, Smith revealed that if public lands are to be managed so as to be of benefit to the public, then decision-makers require information on social, economic, personal and scientific value. The study appreciates the increasing value

attached to land for competitive uses as a consequence of the rapidly increasing population and industrialisation. It observes that land agencies in the U.S stand in particular need for information to enable them to set priorities on land use and manage public lands to meet broad range of user and public needs if they are to continue to meet outdoor recreation demand.

This need is of importance to Nairobi city in planning for recreation. A report on recreational use of the West Midlands countryside by Judy White and Michael Punn (1974) detailed the personal characteristics which included age, sex, marital status occupation, social class and socio-economic groups of respondents. These were carefully analysed, and significant relationships with other variables for example, frequency of visits, length of stay, time taken to reach site were investigated so as to discuss the implications for the site management and overall urban recreation strategies.

Relatively, little research has been done in Kenya on recreation and the use of open spaces. Of the few studies done in the country the emphasis is mainly on the foreign tourist and the affluent section of the Kenyan society. Such information is usually found on official guidebooks to the City of Nairobi. In one of the few documentations of planning of recreation on a township scale, Dosio (1977) carried out research on recreation planning in Kisumu town.

He stratified the town into three socio-economic groups: Low, medium, and high income from which samples were drawn. He looked

at four basic items; demand for recreation, areas and facility with emphasis on individual demand as influenced by personal attributes such as ethnic groups, sex, age, marital status, education, income and so on. He found that effective demand for outdoor recreation was great in the town and occupied over 33% of overall weekly leisure time. He observed that factors such as education and climate were the most significant recreational demand determinants.

He went further to examine the standard and management of these recreational facilities and found that they followed no set out standards, and that they were poorly managed. He concluded that recreation demand was frustrated by unfair distribution of planned places from the residential areas, despite a great demand for recreation places in town. Economic reasons for the utilisation of recreation facilities were found to be paramount but non - economic factors were not to be underestimated. The study was quite comprehensive but it dealt with a wide range of outdoor recreation activities including sports, parks, playground, private clubs, so no one particular activity was detailed.

The present study therefore, intends to dwell on the use of parks in Nairobi city as a form of outdoor recreation alone, so as to give a detailed report on their use from the visitors point of view and according to the planners and to the researchers' own observations. Otherwise, a study on all outdoor activities would only give a very general conclusion.

Maina (1982) in her study of recreational open spaces in

Nairobi's highly populated Eastlands of Nairobi, observed that provision of open spaces and recreational facilities were inadequate. She found that demand for them was above average despite their deficiency. A major drawback of the study is that it only considered open spaces in the Eastlands area where there is a shortage of recreational open spaces. She examined the possible development of Nairobi River belt into an elaborate urban liner park system connecting the now Kamukunji open air market and the Nairobi Arboretum. She suggested that this would alleviate the shortage of recreation spaces more acute in the Eastlands residential suburbs. But even if the park is developed, Planners would require information on the socio-economic characteristics of the users, their views and opinions and problems they face in the use of these park. So that the planners can give the people what they want. She also found out that other open spaces were being developed into buildings thus leaving few inadequate open spaces. The study proposes provision of more social halls and recreation places to correct existing deficiencies. The study is very relevant especially with new estates coming up and the need to plan for a neighbourhood unit.

Recently user surveys in Britain indicated that demand was moving into a pattern of neighbourhood response, therefore, it becomes clear that any identifiable local community should have access to a wide range of recreation and leisure situations. She recommends that recreation as a matter of choice should, therefore, be given greater priority from the city authorities. This study intends to look at public open spaces within the city

of Nairobi at a detailed analysis in relation to residential areas of the users. For example, since most of Eastlands has few or no open spaces then most of the people living there should be frequent visitors to the established parks within the city boundary. But is this the case?

Rukenya (1980) underscores the fact that Nairobi's population is rapidly increasing and there is need to plan for the parks more efficiently so that they can serve more people as one form of outdoor recreation. Consequently, urban parks and other recreational areas of the city should be designed to fulfil the needs of the users. Different recreational areas should reflect different moods, offering different types of recreational pursuits. This study intends to gather such information so that it can be utilised for public benefit by the planners.

So far the most comprehensive report on out-door recreation in Nairobi is by Mwaniki (1977) which was later revised in 1982 by the NCC engineers department. The report covered all open places within the city boundary and the only weakness is that it is very general and it is biased towards the Eastlands areas. She recognised the inadequacy in the provision of open spaces in this part of the city.

She mentions increased population as one of the reasons for the need of provision and development of open spaces. Population statistics indicate that Nairobi had an average growth rate of 4.9% per year which is higher than the national average of 4% per year, (Central Bureau of Statistics). Such a large population increase demand on an elastic land supply points to a serious

need for comprehension towards planning including in the field of outdoor recreation. Again, of the total population majority of it is young which makes planning important because it is at this age (15-39) years that recreational interests are at their most diverse and intense in demand. This study will look at age of respondents in the parks and attempt to analyse the age-group that most utilises the park.

Increased education is another factor influencing recreation. There is a direct causal relationship between education and the use of leisure time. A pilot national recreation survey carried out in Britain in 1962, noted that interest and participation in many recreational pursuits is closely related to the amount of education that one has received. (Outdoor Recreation Resources Review Committee 1962). This research intends to study the influence of education on utilisation of outdoor parks especially in view of the trend for more and higher education in Nairobi.

In MDCS, research has shown that income is a crucial factor affecting levels of participation in recreation activities. According to the Nairobi Urban Study Group (1983), Nairobi's Gross Domestic Product is projected to increase eight times between 1990 and the year 2000. The average income per household will be expected to rise by 60%. But the question of income is associated with the residential areas, high, middle and low and the location of recreational facilities. Thus it is expected that a person with low income will travel far less for recreation as compared to a person with high income. Therefore, if a

recreational facility is located far from a residential area then the probability of a potential user having an effective demand on that facility drops considerably. Balmer 1971 observes that the real weakness in the contemporary urban open spaces centres on the question of location. While the importance of correct location is constantly stressed, practical guidelines on what is correct are non-existent.

One of the broad aims of a recreation policy is to increase opportunities for recreation and ensure the availability of recreational opportunity. People need to be able to get to them, that is the opportunities need to be geographically or spatially accessible to potential users, who have varying capacities for using different travel methods as determined by the level of ones income. It is the purpose of this paper to examine the consideration given in research and policy documents to accessibility, to personal mobility and to the travel component of recreational activity. To enable decisions to be taken on extending the availability of recreational opportunities, decision makers need to have a comprehensive understanding of present patterns of the park visit.

From the foregoing literature review, several weaknesses and gaps in the past studies related to this particular study can be observed. One observation is that Nairobi has little information concerning outdoor recreation and especially in the use of parks. Most people are not aware of the various parks available and what they offer in terms of recreation.

Past research efforts have tended to concentrate on only certain

parts of the city with little attention to others such as the Central Business Districts. Why do people who live in areas deficit of open spaces not utilise the parks within the city boundary. A gap exists on how these parks as resources are utilised.

Again who are the park visitors, their social and economic characteristics, their reasons for visiting the park and the problems they experience in the use of these parks. Also these people's views and perceptions on the parks should be investigated to aid the the policy makers. For example, little has been done to investigate the existing relationships between location of open spaces and the state of utilisation. Also, little has been done in an attempt to examine the use of open spaces against notable social features such as ethnicity, sex, education, income e.t.c in a bid to understand what factors influence the use of such an open park. Little is known about the demand of such facilities in the local situation. How many people will visit this park at any one time and how does the demand vary over a period. These are some of the issues that will be attempted in the present research.

The study examines the conditions of recreation in the use of parks with reference to the growth and spatial planning of the city. First the status areas of the existing recreational areas is discussed covering in particular their locations and the associated infrastructures.

Secondly, planning and management standards for various

recreational parks is outlined. The study also looks at the impact of the growth of the city on existing recreational spaces and the future provision of recreational areas, a necessity in the spatial planning and development of urban areas.

The study is divided into two main parts. The first part is a descriptive study of the existing recreational spaces in the city. This part includes a detailed analysis of the distribution, size, and quality of these spaces. It also examines the impact of urban growth on these spaces and identifies the main problems facing them. The second part is a prescriptive study that proposes a strategy for the future provision of recreational spaces. This strategy is based on the findings of the descriptive study and takes into account the needs and expectations of the urban population. It includes recommendations on the location, size, and quality of new recreational spaces, as well as measures to improve the existing ones. The study concludes with a summary of the main findings and a list of recommendations for the city's spatial planning and development.

CHAPTER TWO

2.1 BACKGROUND TO THE STUDY AREA

Although recreation and the every day life of our forefathers could not be dichotomized, we are certain that they led full and relaxed lifestyles and had maximum recreation in their own way. They, for instance, had such activities as dancing, wrestling, hunting, swimming and walking among others. However, since the colonial period the provision of formal recreational activities encouraged the development of a recreation culture.

Inspite of this, formal recreation is more of an urban activity in Kenya. In the urban areas many Kenyans live in congested and poorly ventilated houses, do monotonous jobs and experience severe space constraints inside and outside their home environment. They also experience a polluted environment, through noise, traffic jams adding on to the urban impersonality. In the developed countries these conditions have severely compounded the need for recreation and ample provision of related services. Within MDCS, research has shown a high correlation between non or minimal provision of these facilities and services with various disorders such as mental illness, obesity, stress among others.

These problems can still be the same for people in the LDCS who are deprived of recreation. In the poor residential estates with absence of recreational space, most vacant small open spaces are at the weekend full of spectators, adults and children

playing games such as football. This goes to show that the need for recreation is strong in our situation.

Not much attention has been directed towards recreation in Kenya or for that matter in the LDCS. This is partly because the development and organisation of recreational resources for the public have been overlooked as increasing emphasis is placed upon the development of the tourist industry. This imbalance exists because the tourist industry is a major source of foreign exchange in Kenya.

As a result there is an inadequacy of recreational facilities within the neighbourhoods and estates and also lack of exposure of the urban residents to the different touristic opportunities within most of our urban areas. Emphasis has tended to be placed on the supposedly economically challenging urban land use programmes such as residential, housing, industrial and commercial.

Nairobi is rapidly growing both in its size and population. With this increased urbanisation, is the rising incomes, higher education, increased car ownership, increased leisure time among others. These changes are expected to increase the demand for outdoor recreational resources of which the demand may be difficult to fulfil unless planning for these open spaces is considered to avert the problem of overcrowding in the few parks. If this potential is exploited then overcrowding would ease in the parks and most people would have at least access to a park and all benefits of recreation required can be realised in

Nairobi.

Therefore, this research examines the conditions of urban recreation with reference to the growth and spatial planning of Nairobi city in Kenya. The status of the existing recreation and tourism areas is discussed considering their locations and the associated infrastructures. The impact of the growth of the city on existing recreational areas is also analysed. The work also gives description of individual activities, levels of participation and the characteristic profiles of the participants. This will give the details to determine whether people from different social, economic and cultural backgrounds have greater or lesser propensities to participate in park visits for recreation purposes. The choice of recreation and range of variables considered is greatly influenced by the amount of time available for leisure and by many other personal factors such as age, marital status, income and educational background. There is also the question of availability of suitable resources and the facilities to make proper use of them: time/ distance involved and the problems of accessibility and excessive demand. The study intends to concentrate on the major issues in the provision and use of recreation.

2.2

THE STUDY AREA

Since its establishment as a railway depot in 1899, Nairobi has grown tremendously both in size and population. Before independence, Nairobi city boundary encompassed the urban area only, some 30 square miles extending about 6 miles East to West

and 5 miles North to South. This area had remained generally unchanged since 1927. After independence there was a change in the city boundary. The 1963 change enlarged the city from 84 square kilometres to 689 square kilometres and this new boundary provided a much more reasonable framework for the administration of the city. (See Figure 2.)

Table 2.1 AREA AND POPULATION.

<u>YEAR</u>	<u>AREA</u>		<u>POPULATION</u>
	<u>Acres</u>	<u>Square Miles</u>	<u>Population</u>
1901	4,480	7.0	-
1919	6,270	9.8	11512
1948	20,542	32.4	
1962	22,400	35.0	266794
1963	170,364	266.0	342,76
1988	698 Km. sq		1.5 million

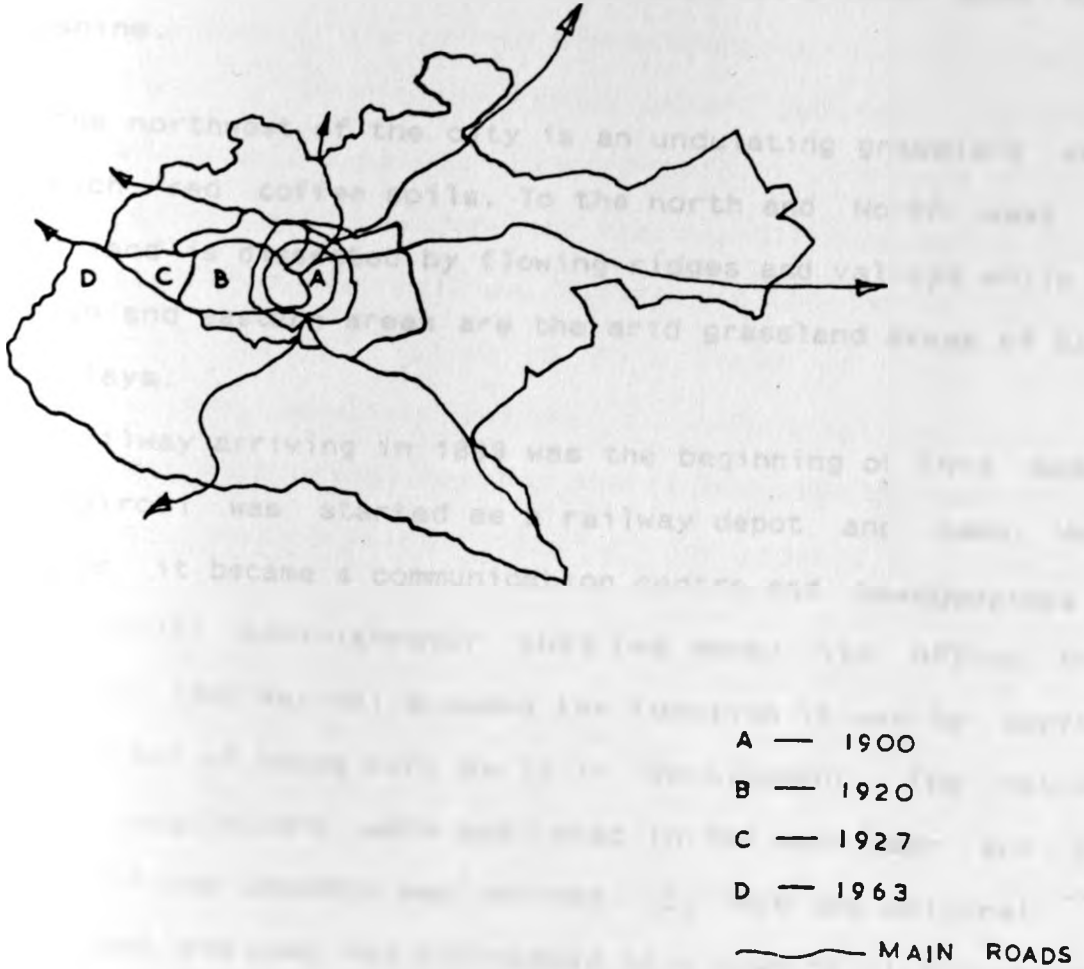
Source Morgan: (1967)

Obudho R.A. (1987)

Nairobi on the western edge of Athi-Kapiti plains and at the foot of the Kikuyu highlands is some 140 km south of the equator and some 480 km from the Indian Ocean coast. Because it lies 1700 metres above sea level, the climate is cool and healthy; Seasonal

Fig 3

NAIROBI : BOUNDARY CHANGES SINCE 1900



Source : Morgan, W. T.(ed) 1967

changes in temperature are small but there is a wide range of temperatures throughout the day. In the hottest month of the year from January to March temperatures rise above 27 degree centigrades (80 f) in the day time while the nights are cool. There are two rainy seasons, the long rains between March and May and the short rains between October and December. But even in the rainy season it is uncommon for a day to pass without some hours of sunshine.

To the northwest of the city is an undulating grassland areas with rich red coffee soils. To the north and North east the sloping land is dissected by flowing ridges and valleys while to the south and eastern areas are the arid grassland areas of black cotton clays.

The railway arriving in 1899 was the beginning of this modern city. Nairobi was started as a railway depot and camp, soon afterwards it became a communication centre and headquarters of the provincial administrator that had moved its office from Machakos. In 1900 Nairobi assumed the function it was to perform as a capital of Kenya very early in development. The Nairobi municipal regulations were published in the same year and the boundary of the township was defined. By 1906 the original railway depot and camp had mushroomed to a town of 11,000 people. The layout which formed inside this first municipal boundary was to dictate the subsequence growth of the city. Definite lands uses had appeared by chance and choice of the inhabitants. In 1907, Nairobi was made the capital of Kenya a position it has maintained to date.

In the early years, the town grew without any co-ordination of development other than those areas within the city. By 1909 much of the internal structure of Nairobi especially the road network in the central area was already established. There was a major review of the towns structure and development which was led by Justice Feethan in 1928 commissioned by the local government. It proposed boundary changes which absorbed within the new municipality most of the previously autonomous housing areas and also defined a peri-urban area under separate government administration called Nairobi Extra Provincial District (NEPD). Neither the Municipal boundary nor the overall disposition of the zones established within it was altered in the "Master plan for the colonial capital" prepared by a team of south African Planners in 1948. Land for residential, industrial and other uses was earmarked with guidelines for the development pattern of the city for the next 20 years. Following independence in 1963, the boundary of Nairobi was enlarged to embrace an area of 690 square kilometres including Nairobi peri-urban settlements and other important features such as large areas of ranging land in the eastern sides, the national park and airports.

Nairobi as the capital city is the economic, administrative, social and cultural centre of Kenya. It is also the major industrial and financial centre supported by an extensive transport and communication network which connects with all other parts of the country. It is the centre of several local, national, regional and international organisations including United Nations, UNEP and Habitat. It is also the headquarters to

the majority of the African based multinational and transnational corporations. Nairobi is the primate centre in Kenya. As shown in Table 2.2, the primacy index of Nairobi has been consistently high from 1948 to 1979. In 1948, the population of Nairobi accounted for 41.6% of the total urban population while in 1962 the percentage declined to 33.8% of the total urban population. In 1969, the total population increased to 47.2% due to the boundary extension as well as the high rate of rural urban migration. In 1979 however, Nairobi's total urban population fell to 35.9% despite the fact that the primacy index was at 123.4%

Table 2.2 Nairobi: Primary index:

Year	1948	1962	1969	1979
Nairobi's population	118,976	266,794	509,286	827,775
4 Largest cities	232,246	508,076	835,941	1,498,737
primacy index				
largest city as percentage of four largest cities	51.2%	52.5%	60.9%	55.2%

Source: Wayne Mackim, "Patterns of spatial interaction in Kenya." In R.A. Obudho and V.D.R.F. Taylor, (eds). The Spatial Structures of Development: A study of Kenya. (Boulder, Colorado West View Press, 1979), P. 191.

Although it contains just a percentage of the country's total population its dominant place in the urban hierarchy is suggested by the fact that it accounted for nearly 50% of all urban residents living in Kenya. The population structure is multi-racial with the Africans forming the majority. (See Table).

Table 2.3 Population changes in Nairobi 1901 - 1979

YEAR	TOTAL POPULATION	EUROPEANS	%	ASIANS	%	AFRICANS	%
1901	EST.						
1906	EST.	11512	579	5.0	3582	31.1	6351 55.8
1931	EST.	47919	5195	10.8	15988	33.3	26761 55.8
1948	CENSUS	118976	10830	9.1	43749	35.2	64397 55.6
1962	CENSUS	266795	21476	8.1	87454	32.7	196900 57.3
1962	O	343500	28100	8.1	86900	25.3	196900 57.3
1969	CENSUS	509286	19185	3.7	67189	13.1	421079 82.6
1979	CENSUS	835000					

NOTE: * Approximate figure

O Including changes 1963 boundary changes

SOURCE: Estimated figures from Morgan (1967), Soja (1972) and official census reports 1979.

The ethnic structure of Nairobi's population has been changing with the political development of the nation. In 1969, Africans constituted the majority 82.6% of the urban population. The population of Europeans and Asians shows a sharp decline after 1962. This is because the majority of the non-Africans emigrated from Kenya following the independence of the country. The sex ratio and age sex composition of the population show further interesting structural characteristic.

Table 2.4 Sex Ratio Changes Among the Africans in Nairobi

YEAR	(CENSUS)	RATIO
1948	Census	386 Adult males to every 100 adult women
1962	Census	250
1969	Census	210
1979		138

Source: Hake 1977, 1979 Census.

In 1962, the total sex ratio for Nairobi was 154 which for the African population was 187. By 1969 the sex ratio had decreased to 147, while that of Africans had decreased to 158. By 1979, the sex ratio for Nairobi had only decreased to 138. Most of the African males during colonial period were engaged in temporary jobs and had homes in the rural areas, where they left their wives. But with independence, the restriction imposed on male migration to towns was removed thus more men have migrated to Nairobi with their families.

The above figures reflect the extent of labour migration to

Nairobi mostly by males. Table 2.5 shows the age-sex distribution in Nairobi, and Table 2.6 gives the estimated projections for the year 2000.

Table 2.5. Nairobi Population By Age And Sex 1979

Age	Male %	Female %
0 - 4	7.6	7.5
5 - 9	6.0	5.8
10 - 14	4.0	4.2
15 - 19	4.5	4.7
20 - 24	8.2	5.7
25 - 29	8.1	4.4
30 - 39	11.1	4.4
40 - 49	5.9	2.1
50 - 59	2.5	1.1
60+	1.6	0.6

TOTALS	59.6	40.4
=====		

Source: Ominde S.H 1984

Table 2.6

Nairobi Population By Age & Sex: 2000

Both Projections.

Age	Male	Female
0 - 4	6.6	6.8
5 - 9	6.0	6.1
10 - 14	5.2	5.3
15 - 19	4.5	4.6
20 - 24	4.6	4.3
30 - 39	10.3	2.0
40 - 49	7.7	4.0
50 - 59	3.9	1.7
60 +	1.5	1.0

Totals	55.2	44.8
=====		

Source: Ominde S. H 1984

There is a clear distortion between ages 15 and 49 years particularly for males. This indicates the large number of persons of working age in Nairobi. The proportion of females is small with most of them below the age of 35. There is, however, an increasing equality of the sex ratios, with young ladies entering into the job market. And there is also a broad base consisting of very young children, both males and females. One of the best methods of appreciating the growth of Nairobi is analysing its population:

Table 2.7 Population of Nairobi 1906 to 1979

Year	Population	% Increase
1906	11,512	
1926	29,864	159.4
1936	49,600	66.1
1944	108,900	119.6
1948	118,900	9.3
1962	266,794	124.2
1963	342,764	28.5
1969	509,286	48.6
1979	837,775	62.5

SOURCE: Republic of Kenya various population Census 1948, 1962, 1969, 1979, as well as other sources from Kenya National Archives in Nairobi, Kenya.

In 1969, Nairobi had a population of 509,286 and in 1979 the population had risen to 837,775, implied annual growth rate of 5.3% compared with national average of 4% over the same period. In 1985 it is estimated that Nairobi had a population of 1.2 million and is expected to reach nearly 2million in 1995 and 3.9 million in 2000 at an average growth rate of 4.9 per annum. This assumes that in migration would decline at an increased steady rate over the period. On these assumptions the population would increase naturally by a little under 2.6 % per annum with net immigrations therefore increasing at a rate of 7.2% per annum of Nairobi's total urban population.

Total fertility rate has dropped to 4.0 as a result of better education, medical and clinical facilities and increased recognition of the economic advantages of smaller families. Mortality rate has declined resulting in life expectancy at birth by the year 2000 to 66 years for females and 62 years for males.

The primary source of population growth in Nairobi has been migration from the rural areas. In 1962 only less than 25% of Nairobi's population had been born in the city (Ominde, 1968). Immigration is one problem being experienced in Nairobi. Experience in other countries at all stages of economic

development has shown that in-migration to primate cities is a continuing phenomenon which national policies can at best cause to moderate but are powerless to prevent.

Attractions to Nairobi must be expected to grow at least for the next twenty years or so. New problems must therefore, be anticipated and there is a need to improve urban facilities. Again even the most optimistic projections show that the growth in the number of modern sector jobs will barely keep pace with the natural increase of population let alone with its total increase including that by in-migration. The problems of unemployment and underemployment already present are likely to increase in intensity and the possibility of employment will correspondingly be reduced for in-migrants as for others. This is compounded by the 'push' from the rural areas with population pressure on the land causing an overspill to the urban areas where more people are now competing for jobs in the non-agricultural sector.

To curb this problem, the GoK has formulated a national policy which aims at nucleation of new physical development to serve the rural areas into a hierarchy of growth centres, and that of designating a number of major growth centres into which important administrative and commercial development would be channeled in order to build up poles of counter - attraction to the dominant and disproportionately fast growing centres of Nairobi and Mombasa.

Nairobi developed without industries in the colonial period

and most of the employment was administrative and service oriented. This legacy has been difficult to change in the post-independence period. A large proportion of employees in Nairobi are still engaged in administrative and service jobs. There has been a concerted effort to develop industries, for example, by attracting foreign investment and even encouraging the informal sector to grow. Table 2.8 shows the most recent comprehensive employment statistics for Nairobi. The number of unemployed was 78,000 in 1979 and about 124,000 in 1985 or 27.7% of active labour force.

Table 2.8 NAIROBI SECTORIAL EMPLOYMENT 1971-1985

	Manufacturing	Primary	Services	Informal	Total
Year	Number				
1971	55638	6558	107917	30800	200913
1979	93236	7188	124326	35582	260326
1985	137306	7688	138160	39431	322585

Nairobi Labourforce and Employment 1971-1985

	Potential Labour Force	Total Employed As Percentage Of Potential Labour Force
1971	283818	70.79
1979	470609	55.30

Source: Ominde S.H. 1984.

In Nairobi the population is distributed in varying densities over the city. There is a general pattern of decline in population densities with distance away from the CBD. The pattern reflects the colonial policies that forced majority of the people to live away from the central city in crowded houses while the greater part of the city was occupied by spacious homes for the high income earners. Recent changes in population densities have generally been highest at the periphery of the city.

Table 2.9 CITY OF NAIROBI: ACCOMODATION AND POPULATION DENSITIES

	Upper Nairobi	Parklands & Eastleigh	Nairobi South	Eastlands
Total				
No. of Dwellings	6150	7354	1683	22,873
38061				
Net Density,				

Dwelling Per Acre	1.15	4.47	8.46	26.00
				4.70
Total Population	31944	76708	9394	110,720
				228766
Net Density of Population Per Acre	6.0	46.6	47.2	125.9
				28.4
Persons per Dwelling	3.2	9.5	4.7	4.8
				5.5

Source: Nairobi City Council

The most rapid expansion has occurred in Eastlands which has most people living there at a growth rate of 16% per annum which is more than double the rate for Nairobi as a whole. The city of Nairobi, therefore, offers conditions that encourage more demands for recreation. In addition to its population structure as discussed before, the city's population is estimated to reach 3.4 million by the year 2000. It has a high literacy rate with two thirds of the adults having at least secondary school level of education and most of the city's inhabitants are within the range

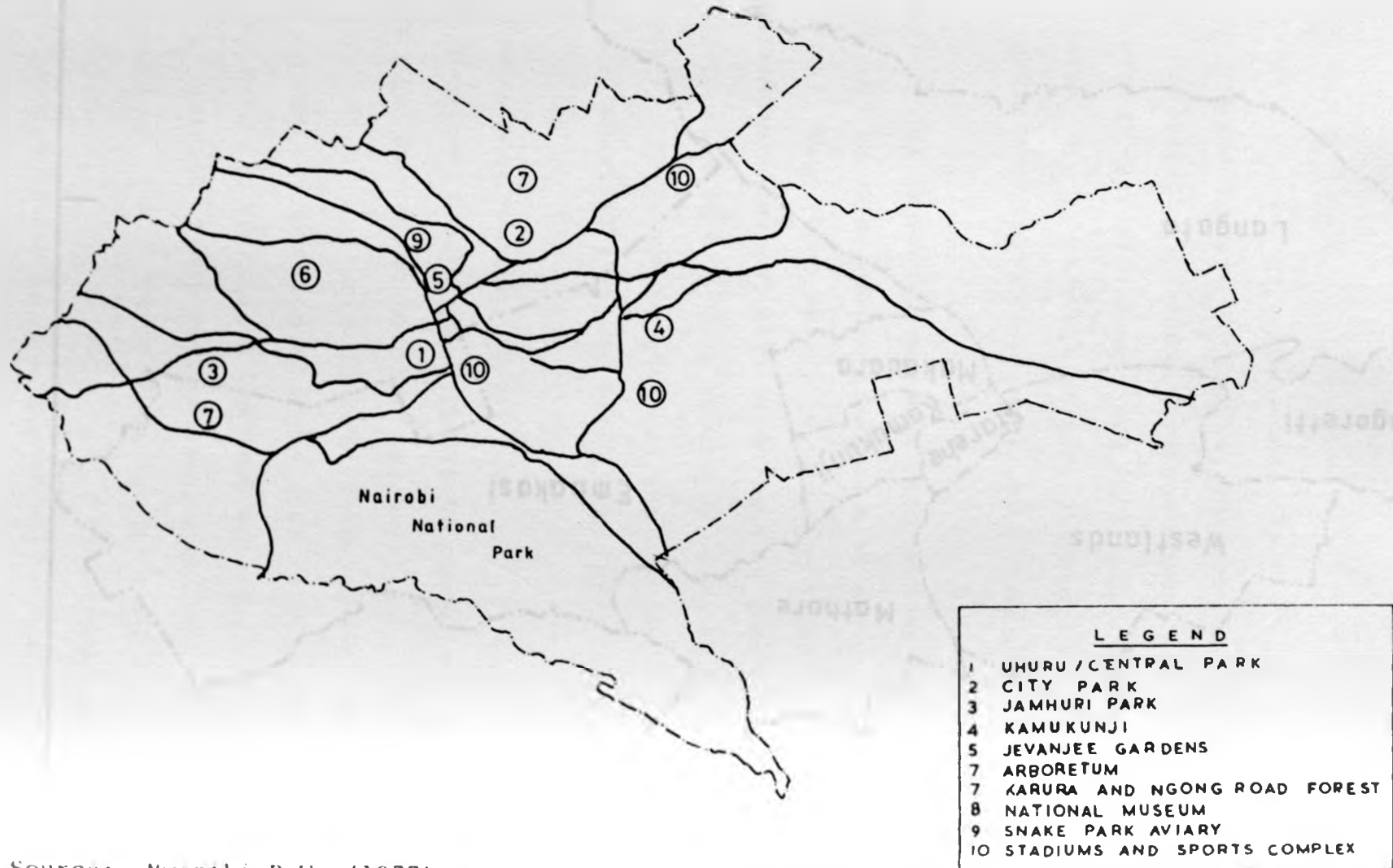
of 24 - 45 years. The income level is generally increasing and coupled with the recent government reduction of working days from 6 to 5 majority of the urban employees now have more leisure time.

Within the city there are facilities for both indoor and outdoor recreation activities. Different types of recreation and tourism areas have also simultaneously evolved. These have developed basically in response to the expanding recreational needs of the population. The city has six major public open spaces including Uhuru/Central parks, Jamhuri and City parks, and arboretum and two forests areas, all serving the entire city population.(Figure.3). In addition, there are several public playfields,sports centres and a number of privately owned urban parks in various parts of the city, all combined form the hierarchy of urban parks of Nairobi.Figure 5 shows their spatial distribution in the city.

1. UHURU/CENTRAL PARKS: The Uhuru (12.9 Hectares) and Central Parks are situated within the centre of the city and are along Uhuru Highway. The park is landscaped and has facilities for recreation and they are well drained and properly maintained. They are conveniently located near the city centre to be used as picnic sites for lunch breaks by the CBD employees. Over weekends they are intensively used for boating, picnicking, although most of their facilities have broken down. On the basis of weekly attendance they are the busiest in Nairobi. Recently a childrens traffic park for road safety education was added to the park. Besides its recreational uses, Uhuru park is occasionally used as

Fig. 4

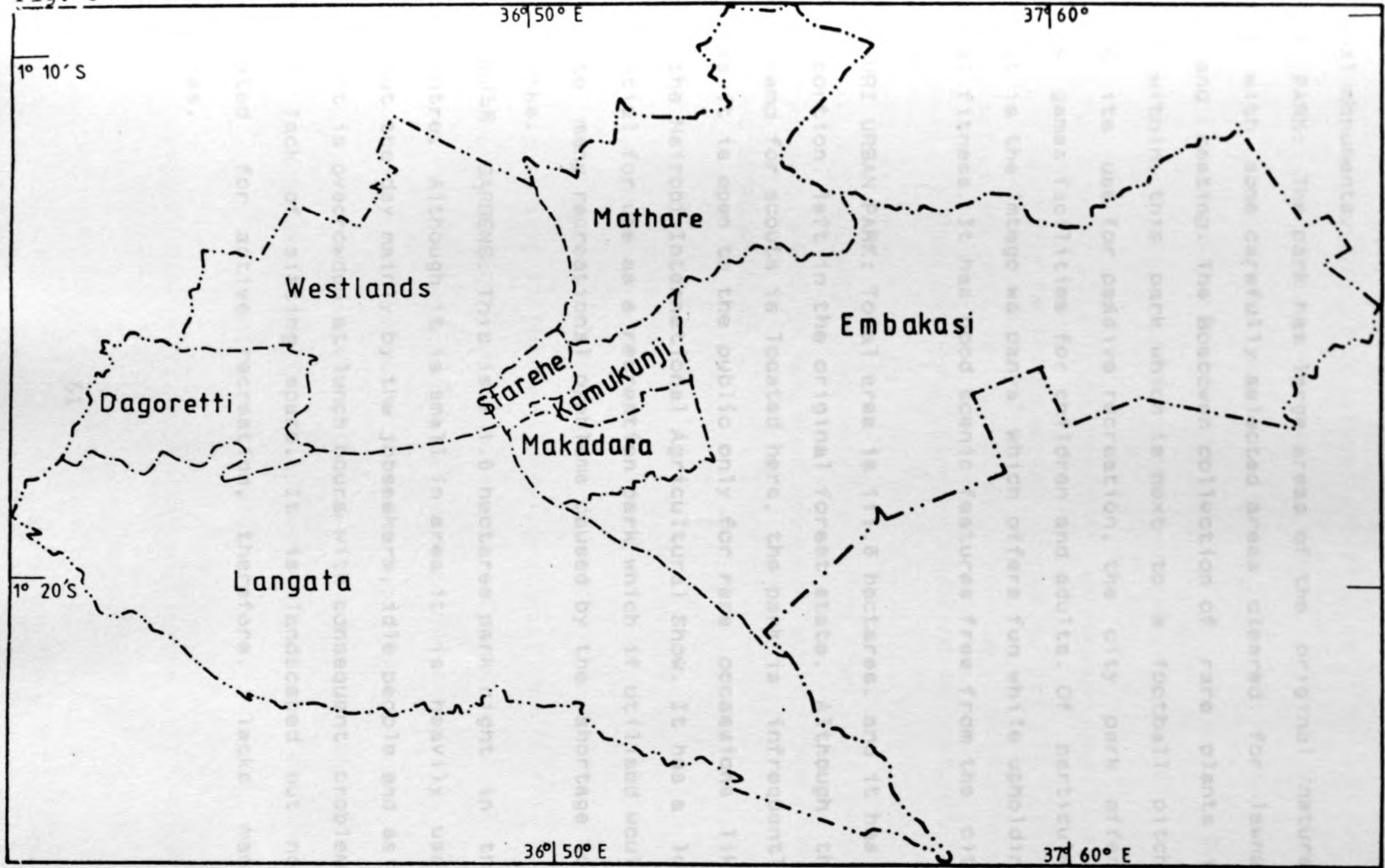
MAJOR RECREATIONAL / OPEN SPACES IN NAIROBI



Source: Mwaniki B.W. (1977)

Fig. 5

CITY OF NAIROBI



a venue for presidential rallies and gospel crusades. It is maintained by NCC and is open to the public. It also contains the national monuments.

2. CITY PARK: The park has large areas of the original natural forest with some carefully selected areas cleared for lawns, walks and resting. The Boscowen collection of rare plants is housed within this park which is next to a football pitch. Besides its use for passive recreation, the city park offers various games facilities for children and adults. Of particular interest is the 'mtego wa panya' which offers fun while upholding physical fitness. It has good scenic features free from the city traffic.

3. JAMHURI URBAN PARK: Total area is 111.6 hectares. and it has a large portion left in the original forest state. Although the Rowall camp for scouts is located here, the park is infrequently used as it is open to the public only for rare occasions like during the Nairobi International Agricultural Show. It has a lot of potential for use as a recreation park which if utilised would alleviate many recreational problems caused by the shortage of urban parks.

4. JEVANJEE GARDENS: This is a 1.6 hectares park right in the city centre. Although it is small in area it is heavily used throughout the day mainly by the jobseekers, idle people and as a result it is overcrowded at lunch hours with consequent problems such as lack of sitting space. It is landscaped but not facilitated for active recreation, therefore, lacks many facilities.

5. MAMUKUNJI PARK: It is 12 hectares and is a riverine trip zone of open space and is next to the Country Bus Station. It has a lot of potential for use if developed properly as it is the only major public open space in the Eastlands. It is neither landscaped nor provided with any facilities for recreation though the park is well planted with trees to provide shade. But on the whole it receives minimal maintenance from the NCC.

6. ARBORETUM: This 30.4 hectares park is under the forest department and is 2.4 km from the CBD. The park has facilities for both active and passive recreation and is used mainly over the weekends. It also has many tourists since it is included in the official guide book to Nairobi. It is less utilised because it is little known and is inaccessible to the non car owning Nairobi resident. Again it has poor access by public means and has problems of security.

7. KARURA AND NGONG ROAD FOREST:-

They are not open for recreational use and have thick undergrowth and are quite insecure. They have a lot of potential for recreation especially if they are developed. Most people are not aware of the forest as recreation grounds and these two do not attract many people because of the imminent dangers that they portray. However, with finance and enough security measures they do have a high potential for recreation. At the present, the forest are conserved until conditions are appropriate for their future development as recreational areas.

8. NAIROBI NATIONAL PARK:- It is located within the city boundary

and covers an area of 177 square kilometres and is 8km from the CBD. It is a good recreational facility for those who can afford it. This park is patronised by many international tourists while the adjacent animal orphanage is also a major attraction. This is because the National Park is more oriented towards foreign tourists and the more well to do residents. There is a need to make this natural resource more available to a wider public. In 1985 and 1986 the park was visited by 110,577 and 93,254 visitors, earning the government a revenue of Kshs. 1,753,573 and 1,911,051 respectively.

The scope of the research does not include private outdoor recreation facilities owned and administered by private clubs and including clubs linked to industrial or business concerns. It also does not include commercial facilities operated by individual and organisations with the express purpose of making a profit. The parks under study are those provided by the NCC as open space for general recreational activities. This is basically the result of the segregation policy of the colonial urban planning of the early stages of its development. No major recreational areas were provided for comfort of the natives consequently most areas of the Eastlands, which then belonged to the natives have relatively fewer recreational amenities and open spaces. Those that exist are located further away from these areas and coupled with the ever rising transporting costs, fewer people make use of these facilities found outside most of these low income residential areas.

2.3 REASONS FOR THE CHOICE OF THE STUDY AREA:

Nairobi as the capital city of Kenya has been a popular centre of various studies. Studies carried out have covered almost all the major land use categories with exception of recreation. It is clear that recreation has been one area that has not received a reasonable attention from the studies of this town while it is supposed to be an important land use for the needs of the residents. Thus there is a need to study the role of recreation in the city of Nairobi so that such information can add to the increasing literature on the city of Nairobi.

Nairobi has a climate that requires sufficient provision of outdoor recreational places distributed all over the city. But some of the existing parks are located far from the densely populated residential areas showing these existing parks are not fairly distributed. Some of them are inaccessible to the majority of the potential users, while others are intensively used causing overcrowding, while yet others are closed to the public and are only opened on special occasions. There is, therefore, a need to correct the existing situation by exposing such problems and providing solutions to them so that every resident of Nairobi has a chance to enjoy his/her leisure time for recreation purposes.

Again potential recreation resources have not been fully exploited. There is improper maintenance of the existing parks and a general lack of attention to recreation facilities with no proposals in plan for the provision of new places. Although on purely cost benefit analysis basis the provision of recreation facilities may not compare with the provision of other services,

recreation facilities if well managed and planned could become income generating and in the long run be economically self sufficient.

Again Nairobi must maintain its spacious standards and further enhance its beauty because of the position it commands both nationally and internationally. The saying that the image of the country is mirrored by its national capital cannot be underestimated. After all the first impression lasts the longest. Thus it is important to conserve our cultural and historical relics which need to be protected from adverse development and developed for various relevant purposes as funds become available.

Finally Nairobi is becoming rapidly urbanised both in its population and in its size. Notwithstanding any reasons that may be put forward for the provision of open spaces in the city, aesthetics alone and the resultant reafforestation of the battered environment is a justification enough. Development without any open spaces in our city is 'ugly'. Therefore, it is up to the authorities to give them an environment that does not suffocate; an environment that upholds health and stimulates mental and spiritual development.

CHAPTER THREE

3.1 INTRODUCTION

The effect of the quantitative revolution in the social sciences have been wide spread with extremely small samples subjected to complex statistical analysis . Yet the field of recreational site surveys has remained relatively immune to such analytical procedures - partly perhaps because of lack of statistical expertise among research workers in recreation planning but partly because of the form in which the data has (necessarily) been collected.

The nature of the data directly influences the type of analysis which can be implemented in a number of ways. In the present case, the variables expressed is either nominal, for instance recreation sites were either 'known or unknown' to respondents or ordinal, for example comparison between the parks. Only few of the variables were measured on an interval scale for example length of stay in the park, distance etc.

For the interpretation of univariate distributions of great consequences; alternatives to the mean as a measure of central tendency are reasonably accurate. But the information to be gained from straight counts is limited, and much more is revealed by an examination of the inter-relationship between variables. The literature of recreational survey offers little guidance on the choice of appropriate methods of analysis. In the few instances of interval scale data, conventional methods such as correlation or regression have been utilised, for example the

aspect of 'demand' for recreation, formulated as of distance decay function which has proved most susceptible to modelling (Clawson, 1959).

The majority of site survey data cannot be incorporated in such models, however and conclusions have been reached on basis of relatively simple analysis. The lack of an accepted methodology for analysis of recreational data inhibits comparison of studies and the invalidity of sophisticated statistical procedures is an obstacle both to the development of such a methodology and to the achievement of universally acceptable conclusions. The solution, given the nature of the information sought in site survey is not immediately apparent.

Accepting the relationship between variables is likely to be of more general value than univariable distributions in explaining the pattern of use of recreation sites; the characteristics of visitors to such parks and accepting also the need for non parametric statistical analysis.

3.2

METHODOLOGY

In this research, the method utilised to investigate bivariate relationships was that of cross- tabulation, with the statistical significance of such relationships measured by the chi-square test.

The expected frequency for any cell is calculated from

$$E (C_j R_j) = \frac{C_t \times R_t}{N}$$

where Ct = Column total, Rt = Row total

N = Sample size.

The chi - square model is given as

$$\chi^2 = \sum_{i=1}^k \left(\frac{f_o - f_e}{f_e} \right)^2$$

where f_o - is the observed number

f_e - expected number

k - number of categories

In the present case, the sample size was 300; for the smallest expected frequency to equal five, the numerator in the above expression must be greater than 1500. Problem arise however with skewed distribution an obvious example here is travel mode. Where 86% of the data is located in one category (non - ownership of car) such that expected frequency for the other categories are almost certain to fall below 5, whatever the distribution of the other variable in any cross - tabulation.

The volume of the data necessitated the use of a computer for the analysis, using the statistical package for the social sciences.

It gave the frequencies for each variable, mean, standard deviation. Straight counts were produced for the total samples for each park and cross tabulations were processed for those pairs of variables for which a relevant relationship was postulated.

Use was also made of multivariate analysis, correlations and regressions. The linear regression of Y (response variable) on two or more X's (independent variables) is called the multiple linear regression - The general model is given as follows:-

$$Y_i = B_0 + B_1X_1 + B_2X_2 + \dots + B_pX_p + \epsilon_i$$

The study used stepwise multiple regression where equations were built up commencing with one independent variable and adding others which are effective in the presence of those already in the equation. The least squares represents the best estimate of the regression equation.

Regression coefficient is given in all the calculated regression equations. It is also called the slope of the regression line and it indicates the magnitude of the change in Y for a unit change in X.

A B larger than unit indicates a steeper slope. If B=0, there is no linear relationship between X and Y. If B is negative there is a negative relationship between the two variables.

Correlation may be referred to as the interrelation between two or more variables. They may either be directly or inversely correlated. In the former an increase in one of the variables say the independent variables usually results in an increase in the remaining variable. Such variables are referred to as being positively correlated. Alternatively an inverse correlation occurs when an increase in one of the variables results in a

decrease in the other and such variables are said to be negatively corrected.

In this study use has been made of simple correlation coefficient which involves the correlation between one independent variable and one dependent variable. Visit to the park remains the dependent variable, while the other factors (education, income, age) are independent variables. In this analysis, correlation coefficient of determination (r-squared) were obtained through this formula:-

$$r = \frac{\frac{1}{n} \sum (x-\bar{x})(y-\bar{y})}{\sigma_x \cdot \sigma_y}$$

Where

r=Correlation coefficient

$X-\bar{X}$ = Mean deviations from X

$Y-\bar{Y}$ = Mean deviation from Y

σ_x = Standard deviation of X

σ_y = Standard deviation of Y

N = Number of data observations

The result obtained indicate the degree of interdependence of the two variables being correlated. But it should be noted that

the information which it provides is liable to be misleading unless the problem is correctly stated. Thus high correlation may be found to exist between two variables not related as cause and effect, while very low correlation may be found to exist between variables which are highly related. In order to avoid such a pit fall, it was essential to have a thorough knowledge of the nature of the variables correlated.

In the calculation of the correlation coefficient there is always the possibility that the coefficient correlation obtained could have occurred by chance. As a result of this it was necessary to test for a chance occurrence. The null hypothesis in this study were therefore tested for statistical significance at a 99% level of probability. The significance level was decided at 0.05 or 5% meaning that if differences at least as great as those of the problem data would occur under five times in a hundred, then H_0 is so unlikely to be true that it is rejected.

This study has made use of both the t- test and F- test. The t- test is the standard against which the power - efficiency of other tests is measured. It makes use of the t- distribution and is used to determine the significance of the difference between two groups of data measured on an interval scale. The t- test is a difference of mean test and t- distribution can be considered as a special case of the F distribution. The formula is as follows:

$$t = \frac{\bar{x} - \mu}{S/\sqrt{N-1}}$$

where

\bar{x} -----Sample mean

μ -----Population mean

s-----Sample standard deviation

N----- Number of variates.

The f-test is an analysis of variance test. If the values of t with N - 2 degrees of freedom are computed they are exactly the same as those for an F with I and N - 2 degrees of freedom.

This means that exactly the same conclusions will be reached in each case whether we use analysis of variance or the difference of means test.

3.3 SAMPLING TECHNIQUES

Sampling is inevitable in research due to the constraints of time and resources that researchers always encounter. However, for a sample to be useful and meaningful it must be a fair representative of the population from which it is drawn such that its statistics provide adequate knowledge for making inferences about the corresponding population parameters. In this study the population is all the parks within the NCC boundary. It would have been impossible to interview all the people in the parks during the research which was conducted between November and

January 1989. Nine parks were delineated as the units of observation since Nairobi has many other open spaces in the residential areas. To include all of them would have resulted in a mere general survey in terms of recreation instead of a more intensive coverage. Thus only the official parks were included. The study sampled different number of people in each of the parks. This was on the grounds that some parks are more crowded and there is much internal variability in their sizes thus warranting more intensive coverage than others.

From the point of view of recreation studies, there are two particular problems which occur frequently in drawing samples, namely determining the size of the sample that is required, and securing, a sample which is representative of the larger population that is the subject of the study. The former problem arises from the nature of recreation itself - a collective term embracing a wide range of diverse pursuits. From previous studies, the level of participation in any particular recreation activity are not very high in terms of the number of people taking part. Thus unless the sample is relatively large it is unlikely to pick up sufficient numbers of persons who take part in pursuits such as recreating in the park to make statistical analysis worthwhile and meaningful. This study chose a sample size of 300 persons.

Random sampling was done and interviewers were instructed to carry out interviews continuously. Such random sampling was likely to produce a biased sample in that interviewing on particular

days of the week at particular times of the day may produce a sample which is not representative of users on the other days. To remove this bias it was decided to carry out interviews throughout a two week period at each park both during weekends and weekdays to get a representative sample. This source of bias was not likely to be reduced merely by increasing the size of the sample.

But on whole, the major difficulty was in obtaining an unbiased sample. This was largely due to the fact that there was no list of the population from which a strictly random sample could be drawn.

3.4 SOURCES OF DATA

Primary data was collected with the aid of a recording schedule administered both by three research assistants and the principal investigator. In the park some people were capable of completing the questionnaire on their own, while others who were illiterate or semi illiterate, the interviewer had to ask each question one by one, translate each into Kiswahili, elicit and record the answers themselves. The personal contact type of interview was preferred over others because of the nature of the study. Again personal contact helps the interviewer in probing the respondent to give correct answers and it also gives the respondent the chance to ask questions about points that are not clear to them. Thus the method ensures the reliability of the results received.

There were also interviews with heads of departments

concerned with the general, physical and economic planning of the parks and also their administration.

During the period of research personal observations were made about the parks which may be difficult to obtain formally, for example, the state of parks in terms of cleanliness.

Secondary data was used to supplement the primary data and the major sources were documents from the NCC, libraries and other published materials of interest to the research.

CHAPTER FOUR

FACTORS INFLUENCING PARK VISIT

1.1 Introduction:

This is an analysis of the relative significance of socio-economic profile variables influencing recreation behaviour in park visit. Data about the profile characteristics of respondents are important in recreation surveys. One reason for this is to facilitate comparison between the findings of different studies. Another reason is to provide the background data about respondents that are generally used as inputs in models and system that attempt to forecast future levels of recreation activity. But the general evidence is that many profile characteristics are highly correlated with recreation behaviour.

4.2 Demographic profile:

While the size of the total population in Nairobi is significant in determining the demand for recreation facilities, the population distribution and the age structure are of immediate importance. There are wide variations in distribution of the total population in Nairobi. In 1974, for instance, 56% of the total population resided in Eastlands and Eastleigh / Pangani area. These very densely populated areas in Nairobi will remain overpopulated with new estates coming up. Nevertheless these areas are the least recreationally serviced in the whole city.

The age composition in Nairobi has undergone significant changes in recent years. In 1979, 34% of the total Nairobi population was under 15 years old. It is this stage and young adulthood (15-39 years) that recreation interest are at their most diverse and intense.

Age was found to be significant when regressed against number of visits to the park per month. F calculated was 4.450 which was higher than F critical at 3.89 with 1,298 degrees of freedom at 0.05 significance level. The age classification adopted was based on the age thresholds used in the census but modified for this research.

Table 4.1 Age Distribution Of Respondents:

Age	Total	Percentage	Cumulative Percentage
No answer	15	5	5
Under 15	5	1.7	6.7
15 - 24	115	38.3	45
25 - 44	120	40	85
45 - 64	42	14	95
65 & over	3	1	100.0
Total	300	100	100.0

=====

Source: Sample Survey (1989)

As might be expected few respondents were children under 15 years of age. This may be largely accounted for by their relative immobility although dis-interestedness may also play a part. Most of the young children do not visit the park unless accompanied by adults. Again during weekdays they are in school and it is only over the weekends that they accompany adults to the park for a visit.

Lower proportions of the middle aged group, 45 to 64 and over 65's were recorded while the 25 to 44 age group were very much over represented. Only 1% of the respondents were 65 or over. This is because this age group is supposed to have people retired from active duty who usually retire to their rural homes. Few of them will continue living in towns unless they have no alternative. Thus the low frequency of retired group is normal since although they probably have the greatest amount of leisure time, the constraints of age, immobility and low income are more important than in any other group.

Therefore, the city will have to meet the prime recreational needs of its population that is still active, although the effect of age in participation in passive recreation is much less than active recreation. Nevertheless there is a general tendency for park visits to decline with age.

The significance of sex in influencing recreation activity was

examined using the obvious physiological ones, male and female. Out of the 300 persons interviewed 60% of them were males and 40% were females. Thus the grouping by sex indicated a clear difference in park visit between males and females, with the males dominating. Consider the sex ratios tabulated below:-

Table 4.2 The Nairobi City Sex Ratio:

YEAR	MALES	FEMALES
1962	163	100
1969	146	100
1979	138	100

Source: Central Bureau of Statistics.

The sex ratio is levelling off which points to more family units in the city a fact which has a direct bearing on the effective demand for open spaces, as these families need more leisure activities. Less families travel every weekend to their rural homes due to rising transportation costs and as a result they need an outlet for their leisure activities.

On the question of park visit, one reason there are more males than females related to the question of security and fear of being mugged. Even in a central park like Jeevanjee the number of male job seekers is higher than females. Because most of the people searching for jobs in the city are most likely staying

with their relatives, while such a man is more free in the house to go to town and search for job a female jobseeker is obliged to help in the household chores and her free time is curtailed.

Marital status was another demographic profile analysed. It had been hoped that marital status could be examined within a fivefold grouping; Single, married separated, divorced and widowed.

Unfortunately there were insufficient numbers of respondents in the last three categories for a valid statistical analysis to be made of these. Therefore, only two categories on 'married' and 'single' were used. In cross-tabulation, marital status was found to be insignificant in influencing park visit. A chi-square test calculated gave 1.860 with 3 degrees of freedom at a significance level of 0.05 while chi-square critical was 7.815. But among the frequencies between the two categories single person accounted for 59% of all respondents and married ones were 41% of total number. A married person has more family obligations as compared to a single persons who is less committed. A mother has to perform many household chores if she is not working during the day, therefore, she has less time for leisure activities. It is equally unlikely for a man with family responsibilities to lie idle in the park at all times. But over the weekend it was different as there was more family based recreation especially in car-owning households.

4.3 EDUCATION

The causal relationship between education and use of leisure was clearly demonstrated by the Pilot National Recreation Survey carried out in Britain in 1967. The survey confirmed that interest and participation in many recreation pursuits is closely related to the amount of education that one has received. This finding was confirmed by that of the outdoor Recreation Resources Review Committee which noted that education in itself has a significant bearing on outdoor recreation even after the influence of other variables like income, age etc is controlled. Information was sought on the education backgrounds of respondents relating to the level reached. This was divided into six categories, primary, secondary, high school, university, college and no-education. The results are tabulated below.

Table 4.3 EDUCATION STATUS OF THE RESPONDENTS

Level of Education	Frequency	Percentage.
Primary	42	14
Secondary	176	58.67
High school	44	14.67
University	29	9.67
College	7	2.33
No Education	2	0.67

Total	300	100
-------	-----	-----

Source: Sample Survey (1989).

A simple regression analysis was used to test the following hypothesis.

H₁: People educated upto the secondary school level are more likely to visit the park than others.

H₀: Education plays no role in influencing park visit.

X:0.05, n=300

Standard deviation 0.49

Mean 0.59

'T': 1.688 T*:1.645

$$Y = 5.83 + 1.209 X.$$

'T' calculated is greater than T* critical at this level of significance. Therefore the null hypothesis is rejected and the alternative is accepted. In the frequencies, it was realised that 59% of the respondents had secondary school education. One explanation is that most of the migrants to the city come with at least some level of schooling. The type of education they receive especially in the rural areas usually prepares them for a white collar job. Since they do not want manual work they migrate to

the town in search of better jobs. Thus the literacy rate is higher in the city of Nairobi than in any other part of the country. Two thirds of the adult population have at least secondary level of education.

A person with little or no education is less likely to migrate to Nairobi as the competition for jobs is stiff. Such people are even less likely to appreciate and know about parks as recreation places. Again people with high levels of education are infrequent park users. This follows that for example, a university graduate is likely to have a better paying job and with the increased income they can afford to visit recreation places that are not free. But on the whole, high levels of education have been found to stimulate participation in a wide variety of leisure activities. It does not only increase the opportunity to participate in leisure activities but it also increases awareness and desire. This is partly a reflection of the influence that education has on occupation and income. But more important is the interest in recreational activities which is fostered in school and other education establishments and which is carried on into later life.

It should be noted that there has been an increase in the number of educated Kenyans which adds to the need for increased recreational facilities and open spaces. Primary school enrollment has more than trebled since 1967 i.e. 1,133,179 students as compared to 2,894,617 in 1976. Secondary schools, teachers training and technical institutions have also more than doubled their enrolment. Quite clearly, the trend for more and

Higher education is rapidly rising. This, however, does not mean that all and only those educated in Nairobi get employed in the city. However, due to Nairobi's primacy it gets the lions share of Kenya's most educated and best trained manpower.

Table 4.4 OCCUPATION STATUS OF RESPONDENTS

<u>Occupation</u>	<u>Frequency</u>	<u>Percentage</u>
Employed	133	44.33
Self - Employed	43	14.33
Housewife	14	4.67
Students	49	16.33
Unemployed	59	19.67
Retired	1	0.33

Total	300	100.00
=====		

Source; Sample Survey 1989

A Chi - square test was used to evaluate whether or not frequencies which were empirically obtained differed significantly from those which would be expected under a certain set of assumptions:

Level of measurements: Ordinal and interval scales.

Hypothesis: The null Hypothesis can be stated as "there is no difference among occupation groups with respect to park visit."

Significance level: 0.05

Degrees of freedom:15

Chi - square computed: 26.504

Chi - square table value:24.996

Therefore, since a chi- square equal to 26.504 was obtained the null hypothesis can be rejected at the 0.05 level and the conclusion is that occupation has some influence on park visit, But the direction of the relationship cannot be predicted. From a multiple regression equation only unemployed, and student respondents were significant independent variables. In unemployed respondents, the following was the equation.

$$Y=6.19 + 2.135 X_1$$

Where, Significance level; 0.05

Standard deviation: 0.37

Mean:0.16

n : 300

'T' critical: 1.645

T calculated: 2.245

Therefore, T calculated is greater than T critical which means

that unemployed respondents are significant park users. This can be seen in the light of the unemployment problems in Kenya today which is more pronounced in the urban areas. Only about 20,000 new jobs are created every year far below the rate of increase in unemployment. Forecasts show that on current trends, there would still be 1.4 million in paid employment, and that 40 percent of the workforce would be unemployed by the year 2000. (CBS, 1987)

Students respondents were also significant in that most of them in their free time go to the park nearest to their schools, some to study others to relax. For example most of the students from Aga Khan High School in Parklands are frequent visitors to the city park. The arboretum has many University students who come for christian meetings, for walks or to study. Jeevanjee gardens has many students from the surrounding schools in the city centre.

When looking at the variables, some are not significant such as the housewives, self-employed and retired. For housewives most of them are occupied with household chores and it is probably only over weekends that they may have time to visit the parks. Again with self-employed persons most of them have responsibilities at their places of work with the sole motivation of increasing profits, thus are unlikely to be frequent park visitors unless on public holidays. Most of the self-employed respondents were those who earn their living from the park such as the hawkers and photographers.

People who are employed were not significant park visitors. During working hours, they have a responsibility towards their

employers and it is only over lunch time that the number of employed respondents rose in the various parks. This is because, at this free hour some come to have their lunch, mainly chips bought in takeaway places, while others come to listen to the multitude of preachers who are in the parks giving out spiritual feeding for many of the lunch time crowd that due to economic reasons cannot afford to buy a reasonable lunch. There are also other entertainments in the parks that attract the lunch time visitors such as acrobatic activities, and street comedians. As a result towards 2 p.m. most of the workers start streaming back to their offices and the parks are left empty except for a few people. In the retired category of residents, they were not significant as explained earlier.

It is well known that occupation reflects to some extent both education and income and is also a significant indicator of social class as far as recreation is concerned. However, there are still many uncertainties about the nature of this relationship and it is dangerous to use occupation directly as a surrogate for other variables.

One of the most interesting aspects of the information gained was the differences revealed between sites, which was entirely unexpected as it was contended that different 'sites' tend to attract different 'types' of respondents with different interest activity patterns. It would appear that different recreationists create different recreation environments for themselves at particular sites. For example Kamukunji park had the highest

number of people in the lowest socio-economic group. Arboretum had the highest number of people in the high socio-economic groups while Uhuru park had a mixture of all these people.

Jeevanjee gardens had the highest number of job seekers. One can conclude that sites that attract high income social groups in large numbers generally attract low proportions of low income groups and vice versa. It can also be tentatively concluded that the striking difference between groups attracted to the sites is related to the type of site for example, if it is developed or not, its distance from the city centre and residential areas, frequency of visit and length of stay. This will be discussed further in later sections of this chapter.

4.5 INCOME

Respondents were reluctant to provide information about their actual incomes, though they were more easily persuaded to give an indication of this by placing themselves within specified income groups. This has been a particular problem in social research and the main task therefore was to devise income groups which would serve two somewhat conflicting functions, each group should encompass as small range of income as possible so as to provide groups which could be adequately tested for significance and -at the same time, they were being asked to place themselves within a range and not give their actual incomes. Respondents were asked to place themselves in the following groups:-

Table 4.5 Distribution of Income Among Respondents:

<u>INCOME (monthly)</u>	<u>FREQUENCY</u>	<u>PERCENTAGE</u>
0 - 999	24	8.33
1000 - 1999	55	18.33
2000 - 2999	43	14.33
3000 - 3999	17	5.67
4000 - 4999	10	3.33
5000 and above	34	11.33
No income	117	39.00

Source: Sample Survey 1989.

From this table, the highest percentage is for those who had no income at the end of the month. Most of these were either students or people not employed. There is a link between a participation in park visit and social economic scale, with levels of participation declining with position on the socio-economic scale. From the study, the higher the income the less the number of park visits. While the lower the income the higher the number of visits. In the developed countries, income has been shown to be a crucial factor affecting all level of participation in recreation pursuits. In this study the significance of income influencing park visit was low. Its 'F' test was not significant while its correlation 'r' with the number of visits to the park was .325 its r^2 being .105 which means that income

contributed only about 10.5% to the total influence of one visiting a park. This information on park visit and income was drawn on a graph. (Fig.6). Income had a linear relationship but a negative slope. As the income rises number of mean visits to the park decreases. The relationship is explained by the equation.

$$Y=7.05 + - 0.94 X;$$

$$X:0.005$$

Mean 5.46

Standard deviation 3.12

Value of 'T' calculated - 0.827

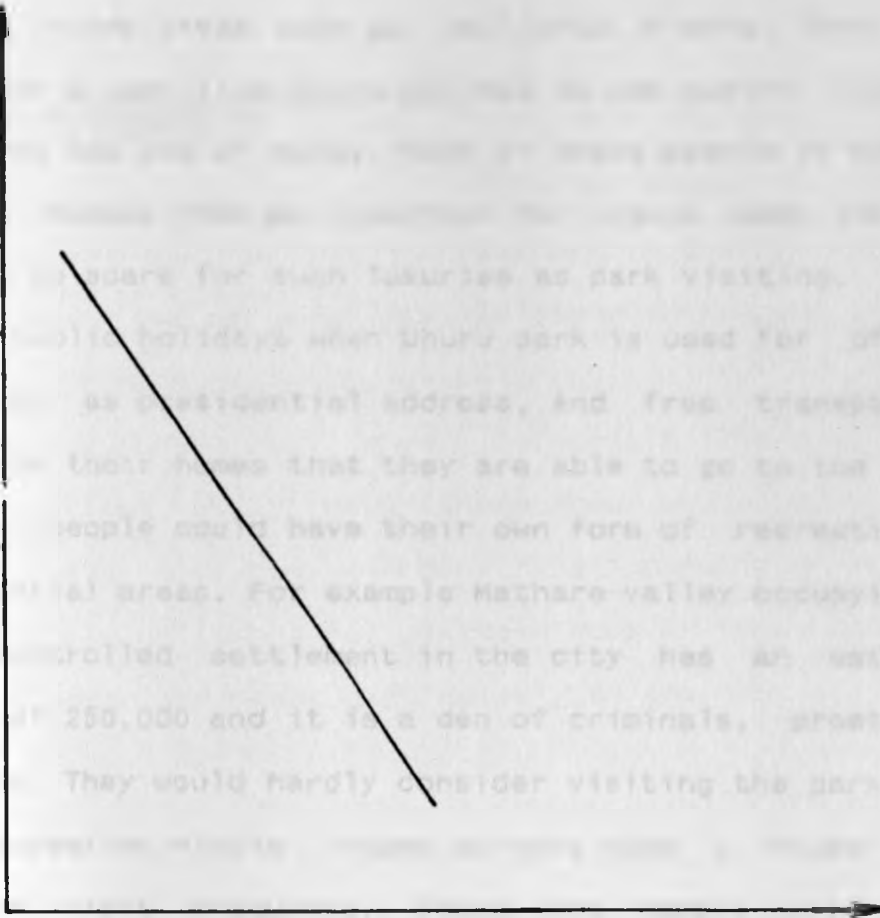
'T' (critical) =1.645

n=300

Income greatly affects recreational habits, for the need to purchase costly equipment, to travel long distances and to pay club membership fees can generally influence participation. For example here in Kenya golf is the game most characterised by those with high incomes. The characteristic activities of those with lower incomes include team games such as football, spectating or playing as in the open fields, none of which make heavy financial demands.

In a general discussion, one would have expected the low income earners to have a higher frequency of park visits, since there are no charges to the park. But these parks are located far

NUMBER OF PARTICIPANTS (PARK) VISITORS



INCOME OF PARTICIPANTS

Figure 6

Hypothetical relationships between income and park visits.

from the areas with high population densities which in most cases are the low income areas such as Eastlands, Kibera. This means that to reach a park like Uhuru one has to use public transport which involves the use of money. Most of these people if not all have meagre incomes that are committed for urgent needs and they have little to spare for such luxuries as park visiting. It is only during public holidays when Uhuru park is used for official purposes such as presidential address, and free transport is provided from their homes that they are able to go to the park. Again these people could have their own form of recreation in their residential areas. For example Mathare valley occupying 40% of all uncontrolled settlement in the city has an estimated population of 250,000 and it is a den of criminals, prostitutes and drunkards. They would hardly consider visiting the park as a form of recreation. Middle income earners have a higher mean monthly park visit frequency. These are people with more education and in Kenya, education and income are closely related variables. Such people appreciate the use of the parks for recreation purposes and they also have means to visit them, since they have the money, either by private car or public means or even by foot especially where the parks are close to their residential areas. The high income earners have the lowest frequency of park visit. It is usually advanced that high income earners are also most probably well educated and have good jobs.

Thus, these people can afford other forms of recreation that are more expensive such as private clubs or other places with entrance fees. It is also postulated that the high income earners

have no time for recreation as they are engaged in profit making all the time.

4.6 TRAVEL MODE

The actual location of the interview sites, have the inevitable consequence that public transport in their vicinity is at best inadequate and at worst non-existent. City park is about 1.5 km from the main bus stop, while arboretum has no public transport service. Uhuru park is well accessible from the public transport services which pass there. When analysis of the influence of travel mode has been done, the indications are that it is far more significant for journeys made on foot than for those made by motorised means particularly by the car.

Table 4.6 Means of Transport to the Park

<u>Means of transport</u>	<u>Number of user</u>	<u>Percentage</u>
Car	40	13.33
bus	124	41.33
bicycle	1	.33
foot	135	45.00

Source: Sample Survey (1989)

In testing the following hypothesis, multiple regression was used.

$$Y = 6.61 + 0.853X_1 + 1.19X_2 + - 4.11X_3$$

where:- X_1 = bus travel

X_2 = Foot

X_3 = Car

X_4 = Bicycle

It is only variables X_1 and X_2 that were found to be significant in the whole equation. To test the hypothesis:-

H_0 : Public transport has no influence on park visit.

H_1 : It greatly influences park visits

Rejection level : 0.05

$n = 300$

mean = 0.41

standard deviation = 0.49

'T' calculated = 1.687

'T*' Critical = 1.645

Degree of freedom = 1,299

The null hypothesis was rejected and the alternative hypothesis

accepted. This is because the park being situated far from the high density residential areas one has to use means of transport to reach them. Since it was found out that most of the visitors to the park are in the middle social and economic class, then most of them without their own means use the public buses. This is especially true over weekends when most people travel to the parks solely for recreation, unlike weekdays when some go to have lunch, pass time.

Respondents who travelled by foot to the park were also significant. This was found to be true especially for those living near the parks and just walk there. For example, city park, Jevanjee arboretum, Kamukunji are within walking distances. Another explanation can be that over weekdays one finds the highest number of people without jobs in the parks. Some of these people can spend the whole day in the park. In such cases since these people have no income and cannot afford to use a bus to reach the parks, most of them walk to the parks from such estates as Biafra, Shauri Moyo, Majengo etc.

Journeys on foot tend to take least time than journeys by bus especially for parks within the CBD mainly during the peak hours. The convenience of walking is confirmed by the greater frequency of visits by people who can reach places of recreation on foot compared with those who travel by car or bus or even bicycles in spite of the more limited opportunity that the former slow mode has compared with the motorised mode.

The implications of this dominance mode of travel by foot

and by bus has far reaching effects. Most people who travel to the parks are the middle and low income groups and cannot afford their own private means of travel. Of particular importance perhaps are the implications for planning policy with regard to the recreationally underprivileged, the carless population of the city. Future planning could redirect recreational provision towards public transport routes and the urban fringe, but there will still be a need to investigate the non-users of facilities to discover the role of transport difficulties in determining such non-use.

4.7 CAR OWNERSHIP:

One of the most important technological innovations which has influenced patterns of recreation activity all over the world in recent years has been the growth of car ownership. All the empirical evidence suggest that frequency of participation increases significantly with car ownership. The utility of recreation facilities, particularly the District and urban parks like the Arboretum and City park is a function of the ease of transportation, both public and private. 86% of the respondents interviewed did not own a car while only 14% owned or had regular access to a car. Car owners are privileged people. They possess a personal independent means of travel which frees them from the confines and vagaries of public transportation. The influence of the motor car is now so much part of daily life that it is easy to forget how recent the rapid rise in car ownership has been. Table 4.7 below shows real and Estimated number of cars registered in Nairobi 1960 - 1985.

Car figures rounded upto the nearest 1,000)

Year	Number of cars	population
1960	45,000	307,000
1965	55,000	407,000
1970	80,000	541,000
1975	95,000	733,500
1980	110,000	1,064,240
1985	126,188	1.2 million.

Source: Central Bureau of Statistics.

Car ownership and the ability to drive are both stimuli to participation in active recreation. In general with the exception of such sports such as rallying the motor vehicle is generally a means of transport rather than an essential part of recreation. Nevertheless because many activities are pursued at some distance from home in areas that are often difficult to reach by public transport, ownership or access to a car can have a marked influence on the levels of participation. This is mainly in active recreation for example the need to convey the necessary equipment makes access to a motor vehicle a necessity in such activities as golf, although vehicle ownership is not a

prerequisite of involvement. People who often visit the parks, mainly those in low income groups have the lowest number of car ownership.

Thus it is a fact that the number of cars operating within the city of Nairobi has grown tremendously. Nairobi has 115 cars per 1000 population while the national figure is 15 cars per 1000 . Futhermore with better management in public transit system, public transport will gain even greater importance and efficiency. This will hopefully enable the non - car owning urban population to enjoy the far sited recreational facilities presently utilised by the car owning Nairobians.

4.8 DISTANCE:

Possibly the most significant influence upon attendance at a recreation facility is distance to that facility and models of recreation demand recognised this point. (Clawson M. and Knetsch. J. 1966). A more accurate reflection of this distance decay function might, however, be a measure of time - distance: effectively a measure of distance as perceived by the recreationist rather than objective distance. But in this study not all the people had travelled to the park directly but had passed through various other places. From the study 29% of the respondents had come to the park from work, 62% had come from home while 9% had come from school. One can then assume that most people left their homes with the sole purpose of coming to the parks. This then assumes that they would most probably take the most direct route to the park in terms of the actual kilometres

travelled. Table 4.8 indicates the mean distances and percentage of people who travelled that distance.

Table 4.8 Distance Travelled To The Parks.

Distance km.	Total	Percentage %
0 - 4	105	35
4 - 8	93	31
8 - 12	60	20
12 - 14	9	3
over 14	33	11
	300	100

Source: Sample survey (1989)

The general findings are that approximately 35% of all visitors to urban parks come from less than 4 - 8 km. While 20% of the visitors travel between 8 - 12 km, only 3% of the visitors travel between 12 - 14 km to reach the parks and finally only 11% travel over 14 km.

Studies by the University of Liverpool for the city's planning department (1966) suggest that size in itself is an inadequate criterion of attractiveness and range of influence of

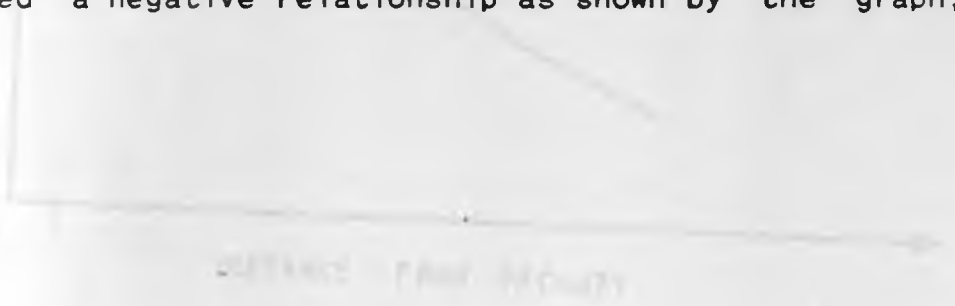
a park. Most people are willing to visit a park because it is nearer to their homes or places of work. A park like Jevanjee is crowded at lunch time despite its small size, but only because it is easily accessible and centrally located among the surrounding offices. 55% of the people interviewed in this park claimed it was nearer and therefore only a short distance to their places of work. In all the parks there was little variation with the size of the park or the type of facility concerned apart from Uhuru park which had the highest number of visitors due to its large size, boating facilities and its central location. This park has a large influx of up country visitors especially during weekdays who come for official business in the city and then decide to visit the park. Some of these visitors interviewed said they wanted to see the Nyayo monuments which are an added attraction to the parks. The park also has a large number of local visitors over the weekends. City park and the Arboretum have a large influx of foreign visitors due to the fact that they have some inviting amenity not necessary related to the size but to their short distances from the CBD. Again these parks are attractions due to their botanic garden and the exotic forest respectively, to be found in the park. These parks are also to be found within the official Nairobi guide book thus most tourist are likely to travel to them.

But in general, in relation to park visits, the predominance of short journeys is evidenced. Forty percent of the visitors to the City Park come from the surrounding areas of Pangani. Same with kamukunji grounds where over 60% of the visitors are from

the surrounding estates. This suggests the importance that the character of the site itself exerts influence over the proportion of people travelling long distance that is over 14km, for example, to Uhuru park. Least attractive to longer distance travellers is Kamukunji, a park on the banks of Nairobi River in the Eastlands. It is basically an open space but even without such amenities as toilets. This evidence strongly indicates a direct correlation between the attractions of an area and the distance people are prepared to travel to reach it.

In a regression analysis where distance was regressed against number of visits to the park, the result was not significant but it indicated a negative relationship as shown by the graph,

(fig. 7)



Regression distance - no. visits

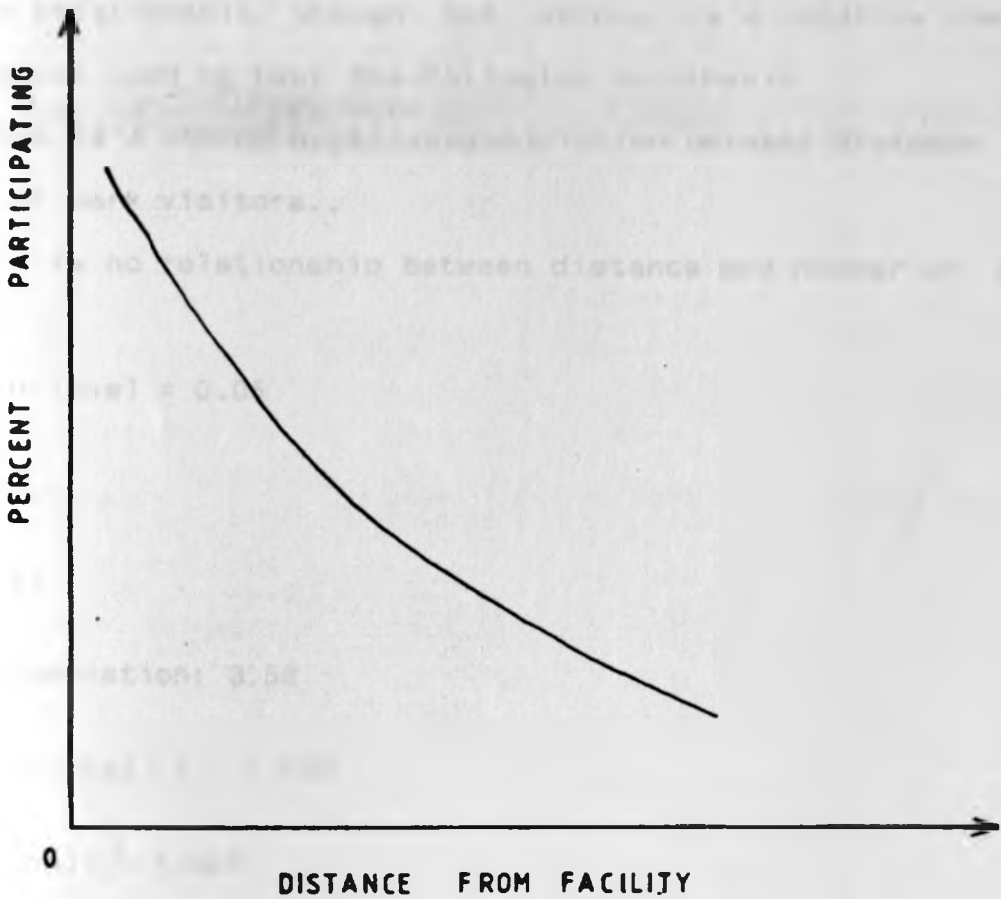


Figure 7 Hypothetical distance — use relationships.

Source: Sample Survey (1989)

The first formulation was frequency of visit against distance. The resulting correlation coefficient was -0.06 showing that the relationship though not strong is a negative one. The data was used to test the following hypothesis.

H₀: There is a strong negative association between distance and density of park visitors..

H₁: there is no relationship between distance and number of park visitors.

Rejection level = 0.05

n=300

Mean: 4.81

Standard deviation: 3.58

"T" (calculated) = - 0.683

T* (critical) = 1.645

Y = 6.87 - 0.068 X_i.

Since the 'F' value is 0.466 and the F critical is 6.76 at 1,298 degrees of freedom, the hypothesis is accepted that distance does influence park visit. Thus the farther away a park is from residential areas the fewer visitors it has. One reason for this is that the farther a park is the need to use some means of transport such as a bus to reach the park. This will mean the use of money to pay the fare, and when the money is scarce then one would rather use it for a more needy item. Again travelling to a

park that is located farther away will also need the time to be allocated for such as a trip.

Distance travelled to a park is expected to be closely associated with the frequency of visits to that site, a farther reference to the friction effect of distance upon participation.

Table 4.9 Frequency of Visits Per Month

No. of times per month	Number of visitors	Percentage
Once	42	14.0
2 - 5	166	55.33
6 - 10	45	15.00
11 - 20	47	15.67
	300	100.00

Source: Sample Survey (1989)

Indications from the present survey are that users living at the farthest distance from the parks make the least number of visits. Hence the greater the journey distance, the less frequent

the visits to the extent that for all respondents with distances of over 14km, more than half had made no more than one visit to Uhuru park in a month. Where the distance were short less than 10 km. however, the largest number of respondents were those making between 2 - 5 visits per month. For those making upto 20 trips per month, most of them are those who go to the parks for lunch, to rest or to be entertained by listening to the preacher, watching street actors etc. Their greatest asset was that the parks were within a very short distance from their places of work or residences.

Thus, the centrally located parks such as Jevanjee and Uhuru parks had the highest visit rates. As a result the accessibility of a site and its attractiveness strongly influence the number of people who will visit it. Its capacity to accommodate those visitors at peak periods is related not only to its size and the degree of crowding visitors will tolerate but to the time they arrive and the duration of their stay.

Differences between the parks in respect to distance travelled is explainable in terms of two main factors, distance from centres of population and intrinsic attractiveness of the sites themselves. Thus the highest proportion of short journeys occurs at the Jevanjee gardens close to the centres of population and at the Arboretum, City park. But this pattern is complicated by a number of factors including that of greater inherent attractiveness of the facilities which lie farthest from the city centre and the question of accessibility of recreation opportunities in the area to potential recreationists in Nairobi.

The lack of intervening opportunities in the Eastlands, except for the undeveloped Kamukunji grounds itself make inevitable longer recreation trips to the parks in other parts of Nairobi.

These findings are important in forecasting demand, since it means that facilities with specially large catchment areas for example Uhuru park, tend to have lower average visiting rates. It was originally postulated that the probability that an individual would use a facility was a function of the distance he lived from that facility. But it was realised later that the individual may have personal characteristics which will also affect this probability. Hence the importance of including social and economic characteristics of the respondents. Not only are the characteristics of the population important but also those of the available facilities (parks) which have been discussed in this thesis.

4.8 Origin of Respondents:

The origin of respondents, that is the points at which their trips were generated were divided into three residential areas. Low income areas, middle income areas and high income areas. One reason for this is that their current residence would have involved very many residential estates that would not have become significant in any analysis. According to the Kenya statistical Abstract 1987, a low income household is now defined to be one with an income of upto Ksh. 699 per month. A middle income household is one with an income of between Ksh. 700 - 2,499 per month while an upper income household is now defined to be one

with an income of Ksh. 2500 and above per month.

The result of the study of current residences of respondents are summarised in the table.

Table 4.10 Residential Origins of Respondents.

Origin	No. of respondents	percentage %
Low income areas	151	50.33
Middle income areas	124	41.33
High income areas	25	8.33
Total	300	100.00

The concentration of origin is significant where 50.33% of the respondents were from low class residential areas from such estates as Kibera, Mathare, Umoja, Eastlands etc. Significant proportions of respondents came from middle class residential areas such as Pangani, Buruburu etc. A Smaller representation is found from the high income areas which is only 8.33% of the total number of respondents.

Factors influencing such an outcome of park visits from different residential areas are probably transportation routes because in Nairobi most of these highly populated areas have good public transport and are accessible therefore it is easy to travel

to the parks. Most of the high income areas are in the suburbs of the city with poor public access routes. Again most of these household have their own private means of travel and choose where to go for recreation.

Another factor can be relative attractiveness. One person may find Uhuru park attractive for a visit during a weekend while another person may prefer to visit a private club for entertainment, but all these again depend on ones income and social class among others.

The frequency of visits to recreation sites has already been seen to be correlated with a measure of distance namely how far a park is sited in terms of actual distance travelled. It is also possible to discern a relationship between frequency of visit and area of origin.

Table 4.11

Cross Tabulation:

<u>VARIABLE</u>	<u>RESIDENCE (area)</u>			
	<u>CURRENT</u>	<u>MIDDLE</u>	<u>HIGH</u>	<u>TOTAL</u>
<u>NO. OF VISITS</u>	<u>LOW</u>	<u>MIDDLE</u>	<u>HIGH</u>	<u>TOTAL</u>
<u>TO THE PARK</u>	<u>INCOME</u>	<u>INCOME</u>	<u>INCOME</u>	<u>STATISTICS</u>
Once	18	15	9	42
2 - 5	87	67	12	166
times				55.55
6 - 10	25	20	-	45

Times				15.00
11 - 20	21	22	4	47

Total	151	124	25	300
=====				

Chi - square = 14.593 with 6 Degrees of freedom.

The Chi - square table at 0.05 level of significance with 6 degrees of freedom is 12.592. The calculated chi - square is larger than would be expected by chance. Since the assumption was that the proportions of the sample in the three residential areas is the same in each of the groups, then since it is not true, the assumption is removed. The conclusion is that the 3 groups have different proportions of the population that visit the parks. Low income and middle income groups have a large proportion than the high income group.

4.10 Length of Stay at Recreation Sites:

The length of time people stay at sites is far more variable, for it depends upon the purpose of their visits and the nature of the site. A surprisingly high proportion was highest at Jevanje gardens characterised by a large number of respondents who visited the site very frequently and perhaps as a consequence stayed for a shorter period (this can also be biased by lunch time visitors). At the farther placed parks from the city centre such as arboretum few short stays were recorded. Most of the

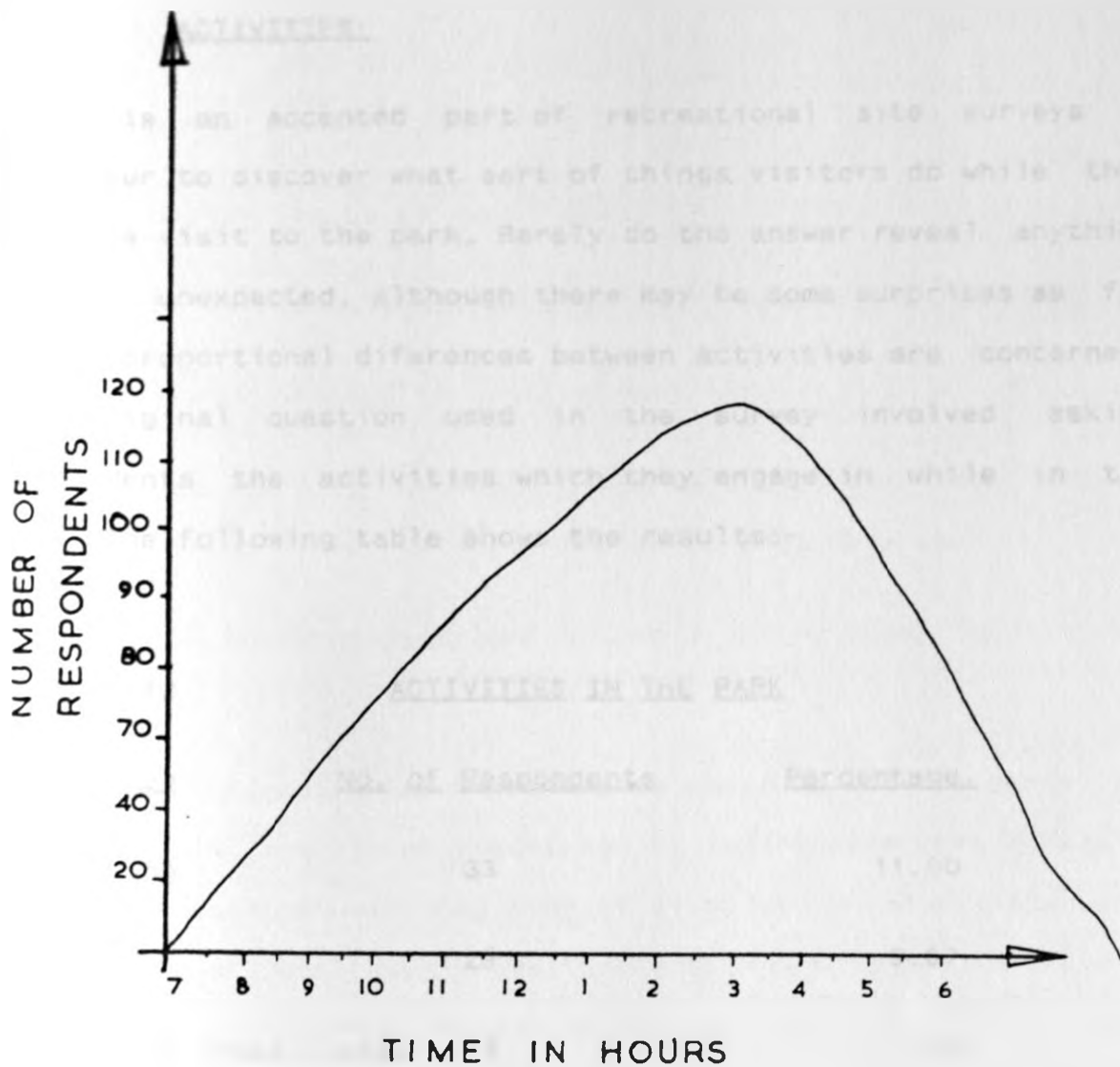
visitors stayed for over 2 hours.

The major problem in interpretation of the result is the constant need for reference to explanation factors which are peculiar to one of the parks. For example, the preachers, street actors, its central location, nearness to office attract visitors at lunchtime to Jevanjee gardens. As a result this park had a higher percentage of visitors who stayed for an hour only.

Kamukunji grounds had a higher proportion of people who spend the whole day there. One reason for this is that due to its location many unemployed people have access to it, who can spend the whole day there. Again the park has a high number of watchmen mainly of Masai origin who work at night then spend the whole daytime there sleeping.

Where entrance and exits were reasonably well covered, and interviewing takes place at and around the peak periods, some indications of the temporal distribution of park visitors at the sites surveyed can be extracted. (Figure 8). One can attempt to give this indication to reflect accurately the shape of the distribution, though not the number on site in absolute terms. As would be expected the peak during weekdays occurs at 1.00 p.m. which is also approximately the peak for arrivals. At this point 53.6% of the respondents were on site and from this point the number diminished very rapidly from 2p.m. During weekends the peak occurs at around 4p.m. and people start leaving by around 6p.m. During this study, arrivals after 6p.m. were not available. This extremely high proportion of respondents present at

FIG 8 EXCESS OF ARRIVALS OVER DEPARTURES IN THE PARK



Source: Sample Survey (1989)

recreation sites at one time inevitably poses management problems, in the overcrowding, in the mis-use of the park and in the administration of the people.

4.11 ACTIVITIES:

It is an accepted part of recreational site surveys to endeavour to discover what sort of things visitors do while they are on a visit to the park. Rarely do the answer reveal anything totally unexpected, although there may be some surprises as far as the proportional differences between activities are concerned. The original question used in the survey involved asking respondents the activities which they engage in, while in the park. The following table shows the results:-

Table 4.12

ACTIVITIES IN THE PARK

<u>Activities</u>	<u>No. of Respondents</u>	<u>Percentage.</u>
Picnicking	33	11.00
Strolling	29	9.67
Looking at trees, lakes	3	1.00
Sitting inside car	39	13.00
Playing games	5	1.67
Walking through elsewhere	18	6.00

Festing	37	12.33
Listening to preachers	66	20.00
Reading	17	5.67
Having lunch	37	12.33
No response	15	5.00

Source: Sample Survey (1989).

The survey concluded that there were 3 specific groups:-

- i). Those who intended to walk, stroll etc.
- ii). Those who were involved in active activities like playing games, boating rides, walking through to elsewhere etc.
- iii). Those whose presence was entirely in the shade, sitting in the car etc.

Passive recreation pursuits predominated in all the parks, but on the whole, activities undertaken by respondents were generally those associated with the type of site where interviews were held, and were generally unexciting and unadventurous. Activities like walking were more common in the spacious parks like Uhuru park, city park and arboretum. This can be attributed to the presence of other exciting views and to a relatively good walking weather (warm but not too hot, with cloudy periods) during the interview period. A park like Jevanje had few or no people taking walks during anyone day. This may be the result of the higher frequency of visit and density of use, and generally a

shorter length of stay (mainly 1 hour) of the sample interviewed.

Young and Willmott (1973) correlated activities with socio-economic characteristics and their findings confirmed the evidence of the Pilot National Recreation Survey, that participation in away from home activities by those in the higher social groups is greater than that by manual workers. From this study, people in the higher social group participated in such activities as picnicking, sitting inside car as such as compared to the people in lower social group who are mainly engaged in such activities as resting, sleeping, listening to preachers, among others. In all, most leisure studies have consistently indicated an overwhelming preference for passive recreational pursuits which suggests that it's the policy rather than the supply which favours provision of passive facilities in recreational space such as parks and gardens as compared to provision of active recreational space.

4.12 REASONS FOR INFREQUENT PARK VISIT:

Choice in passive recreation is limited by two types of constraints. Personal constraints include time available, income, age, sex, educational background as such. Environmental constraints are divided into facility constraints and lineage constraint the former being a function of the availability of facilities and the latter access and awareness. The following table shows the response to the question on the reasons for infrequent park visit.

Table 4.13 REASON FOR INFREQUENT PARK VISIT

	<u>Frequency</u>	<u>Percentage %</u>
i). Weather	26	8.67
ii). Time	71	23.67
iii). Personal commitment	56	18.67
iv). Lack of bus fare	19	6.33
v). Household duties	4	1.33
vi). Studies	13	4.33
vii). Distance	18	6.00
viii). Not Applicable	93	31.00

	300	100.00
=====		

Source: Sample Survey (1989).

Apart from those who had no answer for the question, the next highest response about 24% give time as the reason for infrequent park visit. The time factor is of increasing importance in influencing recreation. Many activities need a relatively long uninterrupted period of time if they are to be enjoyed to the full. The choice of recreation and range of variety considered is

greatly influenced by the amount of time available for leisure and the personal factors.

More leisure time will be available in the future to the average person and some of this time will inevitably be devoted to outdoor recreation. This extension of leisure time will stem from reductions in working hours and longer holidays periods. In addition medical advances will extend life spans, thereby increasing the number of elderly people in retirement who will require increased leisure time facilities. This is due to improved health and medical care coupled with a probable fall in the birth rate. The research was more on the use of leisure time that is devoted to outdoor recreation beyond the confines of the home. Research has shown that passive activity in and around the home occupy the bulk of time such as watching television, listening to the radio, hobbies such as knitting, gardening etc. Most people relegate outdoor recreation to a minor position when ranked among other duties such as household work and personal duties, socializing with friends, among others. Especially over weekdays, most people do not travel to the park directly but make other stops on the way to the park. But over the weekends most visitors had actually travelled directly to the park. From the survey the following table shows from where the respondents had travelled to the park.

Table 4.14 Origin of Respondents who travelled to the Park

<u>To the park from:</u>	<u>Frequency</u>	<u>Percentage</u>
work	87	29.00
home	188	62.67
School	25	8.33

Total	300	100.00
=====		

Source: Sample Survey (1989).

The most important point to be made about location and available recreation time is that they are interdependent variables in determining opportunity. The longer is the period of available recreation time, the more flexibility is possible in the location of facilities. This of course assumes that the length of each period of recreation time is the primary constraint and that the location of facilities can be adjusted in line with this, but there are also situations in which the location of facilities is fixed.

The weather was given as another reason for infrequent park visit by 9% of the respondents. It is a well known fact in recreation research that the weather is a key variable in recreation use although little has been done to quantify the effect of weather on park visit. Paull (1973) identified four weather circumstances which park users might consider before setting out, on site weather conditions, weather conditions at home, weather forecast and anticipated conditions, thus showing a

relative importance of sunshine duration and temperature on local demand. Nairobi has a favourable climate, plenty of sunshine every day except during the short and long rains. This makes it possible for people to visit the parks anytime of the day. The weather conditions are therefore sunny, cloudy or rainy but the temperature conditions are not so important as the variation range is never too large. During the research period, the number of occasions when interviews were actually conducted during rain were few. Most of the parks have no rain shelters and the ones existing were constructed more for sun protection than rain protection. For example most of the few sitting places are under the trees. So in the rainy seasons there are no park visitors.

4.13 Problems in the Parks.

Table 4.15 Problems experienced in the park.

Problems	Frequency	Percentage %
1. Lack of maintenance (dirty toilets, lack of clean water, untidiness)	56	18.67
2. Excess photographers (uhuru park)	5	1.67
3. Too many preachers Jevanje	13	4.33
4. Parking boys	10	3.33

5. Mad people	10	3.33
6. Pick pockets (central park)	3	1.00
7. Noise from vehicles (centrally located parks)	14	4.67
8. People misusing the park (carelessly throwing litter)	31	10.33
9. No response	151	50.33

Total	300	100.00
=====		

Source: Sample Survey (1989).

The highest percentage of the park visitors 18.67% were those dissatisfied with the maintenance of the parks. Most of the toilets in the parks are dirty and do not work. Uhuru park has even new toilets recently constructed but they have not been opened to the public. Again taps of clean water for drinking are not available in the parks. Even looking at the artificial lake in Uhuru park one can see that it is not regularly cleaned. Again there is poor maintenance of the monuments that have been put up in the park, the water foundations have broken down while the illuminating lights are not working.

In Uhuru park, there is a need to adopt a consistent policy on the photographers. They are far too many and haphazardly located

in the park. This problem is rather a 'chicken and egg' situation in that the photographers are attracted by the people and vice versa. It may be more realistic to accept the situation as far as possible by either licencing a limited number of these photographers or providing a purpose built kiosk or service area which should be less aesthetically offensive.

Most of the centrally located parks have to contend with noise from passing vehicles thus one cannot get complete relaxation from this noise pollution in some of the parks like Central park. And in Kamukunji there are many pickpockets who are reputed to even steal shoes from a sleeping victim in the park. This creates a lot of insecurity where one cannot rest completely but has to be on ones guard. In Jeevanje gardens many people expressed the fear of mad people and the parking boys who can even snatch ones lunch and run off to the streets. There is therefore a need to improve on the security of the parks so that people can comfortably relax.

The Arboretum problems are somewhat different in that the internal site management is fairly satisfactory in terms of coping with the present volume of visitors, but as this is lower than in any other site it is difficult to compare. It seems that it has a potential for absorbing a much higher density than at present and could act as an alternative for other surrounding sites, if people are more aware of its existence. Some of the respondents interviewed in Jeevanjee gardens complained of the large number of street preachers. There were as many as six different preachers in all corners of the park at any lunch time.

One observation noted is that these preachers are few or absent all together during the end of month when even the number of visitors is small. But one week after the month end then the preachers and the visitors increase in large numbers. One of the reason for this is economic since when people have money, they can afford to eat lunch but when the money is not enough they resort to spiritual feeding during the lunch break. There is a need to control these preachers as some of them just engage in mud slinging with the others and are more of a nuisance.

CHAPTER FIVE

TOWARDS A PLANNING STRATEGY FOR OUTDOOR RECREATION

5.1. THE DEMAND FOR RECREATION

The structure of the study area's population implies that demand for recreation and open space is high. But the demand for recreation in Nairobi cannot be statistically quantified since no researcher has seriously ventured into this field. On site surveys alone cannot measure either current or future demand levels because the participation levels are observed under prevailing recreation opportunities conditions which are a function of the available supply of recreation resources. This can lead one to assume that people will demand only increasing quantities of what they have, thus perpetuating imbalances in the supply of recreation opportunities.

Moreover, for many informal recreation activities no direct charge is made and as a result their demand for use as recreation resources is a function of first, their attractiveness as facilities and secondly, the relative cost of reaching these places. Thus, the total number of people who visit an urban park provides the only measure of demand for that park as there are no fees charged, and changes in these numbers will usually reflect changes in one or more elements of supply, for example, improved access to the park or improved weather conditions. Figures of use or attendance are the direct effect of existing demand and existing supply.

The demand for recreation can be considered in four dimensions;

5.1.1. Present effective demand.

This represents the number of people who actually take part in park visiting, of which the current state of knowledge of the distribution of available facilities and their use at the local level is still relatively limited. Even so it is clear that demand varies by time of day, week, season, at different stages in the life cycle and is influenced by some socio-economic background.

One effective demand measure is in terms of the frequency with which they use them. In Nairobi, the frequency of use is relatively high especially over lunch hour and during the weekends, with the highest frequency of visit being recorded at Uhuru park. This reveals a high demand that currently exists amongst the population of Nairobi for outdoor recreation. One conclusion is that most of the outdoor recreational activities with greater demand are those having no direct charges. Thus, for these recreational resources the demand for their use is a function of first their attractiveness and facilities provided and secondly the relative cost of reaching these places.

Therefore, the traditional existence of recreational places in an urban place and the number of users for an urban park certainly reflect an active demand for it.

5.1.2.

DEFERRED DEMAND

This represents demand at present frustrated either by scarcity of facilities or lack of knowledge of the existence of such facilities. The provision of more recreation opportunities and or better publicity for existing facilities will increase current effective demand. For example 23% of the respondents suggested that the concerned authorities should make people aware of the parks and what they offer either through the mass-media or in well advertised signs pointing out the park. This is because during the research some of the respondents had never heard of the arboretum or city park and only knew Uhuru park.

A survey of the location of open spaces in Nairobi shows that some areas have a deficiency especially the Eastlands, Dagoretti areas. This deficiency represents two aspects of deferred demand. One is for people with limited time and mobility and the second is for facilities at district or urban parks catering for families, individuals and where the demand is heaviest over the weekend.

This research looked at this aspect of demand and found that the size of a parks catchment area is related to its acreage and to some extent its facilities. Therefore Uhuru park has a large catchment due to its large size and attractive facilities available such as boating, while Jevanjee gardens has a small catchment due to its small size and the presence of few

facilities available.

Deferred demand is prevalent in areas that lack any recreational activity or have a scarcity of facilities. Such areas can be said to have a latent demand, which for some reason is not effective, but which would be so in other circumstances. It is a demand which is frustrated by such factors as none existence of facilities.

This deferred demand could be transferred into current effective demand by greater provision of parks mainly neighbourhood or district parks, which require expenditure and large areas of land. In Nairobi, though park facilities are not adequate, part of the present problem stems from maldistribution rather than the absolute shortage of existing open spaces. Thus areas with inadequate provision should have new facilities located there to ease the deferred demand.

5.1.3. Potential Demand:

This concept relates to that section of the population who require an improvement in their social and economic circumstances before they can be brought into the effective demand market. This idea is closely tied up with predicting future levels of demand given changes in population, income, education, freetime and other key variables that influence growth in demand. This is important so as to match predicted levels of demand with the

supply of recreation opportunities. Research in Britain suggests that four basic changes may appear as a result of current trends. These are:-

i) Changes in the cycle of individuals with more and younger marriages.

ii) Changes in mobility through diffusion of new transport modes, and a wider diffusion of existing ones.

iii) The continuing process of urbanisation which may increase participation rates in urban located activities and decrease non-urban activities.

iv) Changes in the form and length of available leisure time.

Thus a change in life style is required to transform potential demand into future effective demand. Changes in life styles are occurring in today's society but the inequality in distribution of wealth among the nations people is not likely to change fundamentally. In other words although changes in life cycle, mobility and leisure time will occur, the social structure of our society is not expected to be radically altered. There is already a situation where the poorer sections of society are so locked in a vicious circle of economic and social deprivation that majority of them cannot afford most leisure pursuits because of their low income levels.

This is the demand which is created as a direct result of the provision of a supply of facilities. For example, if the Nairobi river is developed as a river-rine park, then an entirely new demand may be generated for it in addition to any latent demand which was previously unsatisfied. Thus the proposed potential recreation reserves like the district park proposed for Eastlands in Nairobi reflects a demand for outdoor recreation facilities. Most of the residential areas in Nairobi like Dagoretti have potential for development of recreational parks. The existence of such places in the urban catchment will help contain urban sprawl.

In conclusion, a knowledge of the nature and scope of the different kinds of recreation demands is a first prerequisite of planning. To those planning the development of recreation facilities it is essential to know the pattern of participation in the future. Establishing statistical links between the nature of participants and their propensity to participate in outdoor recreation provides a means of forecasting future trends, and these links have been exploited in most of the regional studies in Britain and U.S.A.

Yet the principal difficulty in forecasting is the lack of knowledge of the forces that govern recreational behaviour. While there is overwhelming evidence that social and economic factors do influence participation in park visits, use of these factors for forecasting is less a reflection of their proven validity

than of the present lack of knowledge. It must be recognised that other factors both psychological and environmental, also have a profound influence on recreational habits. It would be much easier to estimate future trends in participation if reliable data existed for past years, since their absence transforms simple arithmetic into a complex statistical task. Because statistical relationships between recreational behaviour and certain socio-economic variables can be demonstrated, it has seemed reasonable to use this relationship for forecasting, but such a procedure requires the assumption that existing relationships will continue in the future.

The leisure revolution has been accompanied by and to some extent has fostered, greater social changes and it seems inevitable that the relationship between social variables and leisure habits will continue to be transformed. Changes in the pattern of marriage and in the nature of the family, the new social roles of the young and of women and new technological and educational advantages are all contributing to a fundamental restructuring of society. In these circumstances, it has been suggested, (Rodgers 1969), that socio - economic parameters are a feeble tool for predicting the changing demand. The total demand for recreation is never fully realised and at any time there is a latent demand untapped because of a scarcity of resources. Therefore that future effective demand will be conditioned more by the available supply and capacity of resources for recreation than by the demand generated by changes in social and economic factors.

The number of users of a park not only reflects a demand for it, but also reflects the supply of the recreation facilities. Supply like demand has two dimensions : present or existing supply and future or potential supply. Present supply is the resources, land and facilities available for recreation.

Given the conceptual framework of the existing recreation supply, the capacity of these facilities becomes an important element in determining their supply. There are three kinds of capacity: physical, environmental and ecological.

5.2.1. Physical capacity

This is the easiest to assess because for many recreational activities, a site has physical limits although other constraints may be present. For example in Nairobi, during peak visiting hours to the park a problem of parking space arises especially for the car owning population visiting the park. Even in the private recreational facilities, car parking space is one limitation for the visitors to these facilities.

But on the whole most of the parks have adequate parking space especially during off peak hours. Unlike Jevanjee gardens which has no parking space for cars as the parking space surrounding the park has stiff competition from non - park visitors.

Although these recreation places can accommodate a large number of visitors, the supply of attractive facilities has not been in keeping up with the large physical capacity as indicated by 39% of the respondents who expressed inadequacy in supply of attractive facilities such as refreshments, children's play equipment such as swings etcetera.

5.2.2. Environmental capacity

This is the maximum level of recreation use in terms of number and activities that can be accommodated in an area before participants perceive a decline in their attractions to that locality. This is the most abstract and least tangible of the capacity concepts and will vary from one person to another and be influenced by mood, season and weather.

In Nairobi, most of the parks located outside the city centre are under utilised because of the inadequate supply of the basic facilities and also due to their inaccessible location relative to the residences of the majority of the city's population in the low density zones. It was not possible in this research to estimate the maximum use and accommodation capacity before a decline in their attraction sets in as most of the parks lacked the minimum recreation facilities.

At the moment it can be generalised from the observations and factors that the parks utilization level is under capacity in terms of number and activities that can be accommodated for

example, in Kamukunji and City park.

5.2.3 Ecological capacity:

This is concerned with the maximum level of recreation use that an area can accommodate before ecological damage or decline occurs. The changes that can take place are influenced by the geology, relief, soil, vegetation cover of the area and the daily changes in intensity of its recreational use. Thus, it is not allowed for a car to drive on the grass lawns of the parks, as it has a more noticeable effect on the soil and vegetation and can cause more damage than the visitors on foot. In Nairobi, the open public parks have the ecological capacity to meet the demands of the population. These parks are well treed and provide sufficient vegetation cover for the protection of direct climatic influence on the park land.

Since the current use is under capacity there is an unlikelihood of a marked change in their use. But in city park damage to trees can be noticed due to the presence of the monkeys that cause considerable damage to the forest. On the whole, changes in recreational capacity exists in the unplanned recreational places used for dumping purposes and other abusive uses, than in the planned and restricted parks. As for the existing developed recreational places, the ecological capacity is likely to increase with an improved level of maintenance and

management.

5.3. PLANNING AND MANAGEMENT STANDARDS

Within the town, open spaces fulfill two main functions: Firstly they provide opportunity for recreation of both active and passive, secondly, and less tangibly they play a visual and psychological role in enhancing the whole quality of the urban environment. A well planned urban centre has many types of recreation areas the total of which forms an elaborate urban park system. Each of these serves a given catchment area. If these catchment areas are more or less adhered to, a hierarchy of recreation facilities emerges. Burton (1971) feels that hierarchies should not be a planners major preoccupation in the recreation planning process since,

"The probability that a user will go to one particular facility is equal to the attraction of the facility relative to all available facilities"(Page 325.)

But it is important for a city to have a variety of open spaces of varying dimensions to satisfy the various needs of the potential users who form a heterogeneous urban population.

For instance there are children, the old, poor and rich, car owners and non- car owners who have different resources to enable them appreciate the parks. It is important for the recreation

system in Nairobi to cater for all the potential users.

Various planning and management requirements have been set to guide the provision of the different urban recreational areas. Table 5.1 shows the requirements for some of the urban recreational areas. These requirements differ from country to country, city to city and are dependent on various factors such as the size of the town.

5.3.1 Planning standards:

These are formulated to act as general yardsticks for quality and adequacy of given recreation areas and facilities. Once a standard of provision has been established, the size of any recreation area is a function of density. For instance assuming a standard of neighbourhood park of 1.2 hectares per population, a neighbourhood park of 4000 people would require 4.8 hectares of park space. On the other hand a catchment area is a function of the maximum walkable distance. For Nairobi, it has been proposed to be 0.4 km and this is supposed to closely correlate with the population density.

Table 5.1

PROPOSED PLANNING REQUIREMENTS FOR VARIOUS URBAN RECREATION AREAS IN NAIROBI

TYPES OF OPEN SPACE	APPROX SIZE ACRES	HALT	STANDARD APPROX PER 1000 POPn	LOCATION:MAX TRAVEL TIME
1. Urban parks	2	0.8	1000 population	
2. District Park	1	0.4	1000 population	
3. Neighbour- Parks	3	1.2	1000 population in high density estates	30 minutes walking distance for the majority
"	2.5	1	1000 pop in low density estates	
"	2	0.8	1000 pop when the park is adjusted to secondary school	
"	2.5	1	1000 pop when the park is adjacent to a primary school	

Source: Report on recreation and open space provision and standards for the city of Nairobi, 1981.

These standards are important in recreation planning though they differ in each urban area according to its unique context.

what is finally important is the availability of urban land, and if in private ownership, the money to purchase such land at the appropriate locations especially outside the city centre for public uses before the land pressure becomes a serious problem. It would be an advantage if such standards were adopted for the city and they can be used in developing at least the three levels of open spaces as discussed below.

5.3.2. NEIGHBOURHOOD PARKS

These could also be called estate parks in as far as they serve the residents of one particular estate. Within the residential neighbourhoods of the city, there are small and big or local recreation areas which add to the hierarchy of open spaces in the city.

It is noteworthy that even in terms of local open spaces the low income residential areas in Nairobi which record the highest population densities are the least provided and continue to be so. The colonial trend of systematic open space deprivation in the Nairobi Eastlands is being perpetuated even to this day. Kalceni, Pumwani, Bahati, Makongeni, Shauri moyo estates planned and constructed during the colonial era and Umoja, Dandora, Huruma, Kariobangi all of which are recent development are good cases for comparison with Lavington and Loresho both of which are high income pre and post colonial development respectively.

Most local neighbourhoods are grossly neglected whether in

high or low density residential areas and are neither developed nor maintained. As far as recreation goes, neighbourhood parks are indispensable components of any comprehensive estate development. No estate therefore, should be constructed within Nairobi without the provision for a neighbourhood park. Neighbourhood parks include such features as an open space enclosed by a low fence, which has facilities such as shade, benches for sitting, swings, slides, balance beams, space for informal play, for formal games etc. They should be large enough not smaller than 0.1 hectares and sufficiently well defined for clear identification to avoid encroachment by other users.

In some estates there are incidental open spaces usually layout leftovers which should be avoided as they present maintenance problems. This is because they are small spaces in large numbers scattered all over the estates. Their size and locations makes maintenance an almost impossible task. Such spaces as a result tend to be used for refuse dumping, parking for discarded cars and other abusive uses. Therefore, instead of enhancing environmental beauty, incidental open spaces often encourage environmental pollution and the resultant health hazards.

For optimum use of land and recreation facilities neighbourhood parks are better planned with other facilities like community centres, local shopping centres and primary and secondary schools. This gives a neighbourhood a definite focus and a sense of identity. In terms of urban planning, neighbourhood parks are indispensable components of any

comprehensive estate development. No estate should therefore be constructed without a neighbourhood park.

5.3.3. District Parks:

These are the chief recreation centres for groups of neighbourhoods. They should be large enough to provide opportunities on a bigger scale for a wide range of activities. For example, such parks should be found in each zone of Dagoretti, Eastlands, Westlands and others.

While urban parks are designed to meet the demands of a city's population, they are designed as landscaped areas to take advantage of some scenic feature like a forest or a valley. These provide urban dwellers an opportunity to get away from the noise and rush of the city traffic to enjoy contact with nature. Such parks in Nairobi include city park, Uhuru park and Arboretum which are commonly utilised. The parks have woodlands and open lawns, water areas, picnic areas, botanical gardens, boating centres, shelters etcetera.

Recent user surveys in Britain indicated that demand was moving into a pattern of neighbourhood response. Therefore it is clear that any identifiable local community should have access to a wide range of recreation and leisure situations. As a result recreation resources in Nairobi cannot be invested in the provision and management of one major prestige facility of a single activity nature.

Result of such an investment policy over the city as a whole could be host of severely under privileged neighbourhoods overlooked in terms of recreation needs. But district parks provide generous space for active and passive recreation in an urban environment and should therefore be located in areas enjoying maximum accessibility. The catchment population for a district park is 50,000. The proposed provision standards for Nairobi is 0.4 ha per 1000 population.

5.4 OPTIMUM LOCATION OF RECREATION FACILITIES

Provision of recreational facilities is concerned with the question of location, not only referring to centrality for catchment purposes but also physical accessibility. One of the broad aims of recreation policy is to increase opportunities for recreation and ensure the availability of recreational facilities to the general public. To make use of recreational opportunities they need to be geographically or spatially accessible to potential users, who have varying capacities for using different travel methods. To the user, the location of the recreation facility is equal to the distance plus the time and the money necessary to reach the facility from his home, together with the actual period of time available for recreation. (Burton 1971). The nearer a recreation area is to the user in terms of time and travel distance, the more time he will have on the recreation site.

In addition, the distribution and location of recreation facilities in terms of distance and travel cost is important. For example, when low income is coupled with substantial distance to given recreation facility, the probability of a potential user having an effective demand on that facility drops considerably. From this research, it is clear that the probability that a person will take part in a given activity is a function of many interrelated factors. For instance it was found out that few low income residents make use of the parks or the other recreation amenities.

Distance, inefficient transportation and the costs involved are the major reasons. The distance between low income residential areas and recreation facilities should be minimized by creating serviced open spaces in areas like the Eastlands. This is because, although the Eastern residential area comprises of only 40% of the total Nairobi residential areas, it houses 60.3% of the total Nairobi population, and has only a mere 17% of the total Nairobi neighbourhood park land. Such an area lacks proper parks and this shortage is increased by the distance to centres of recreation like Uhuru park, City park, Arboretum more so now that the public transportation costs have risen to unprecedented heights. These low income residents have little or no money for recreation purposes as their savings primarily go to the satisfaction of the basic needs.

Therefore it is important to establish a district or urban park in such areas to offer both active and passive recreation

especially in areas being opened up for development. Otherwise a big proportion of the Nairobians will not only continue to subsidize the well to do in the maintenance costs of the public facilities, but will also continue to be deprived of recreational services.

Bearing these in mind, the location of parks should be determined by the location of the users. These should be located within a walkable distance of not more than 0.4 km of each home. Even urban parks should be located with minimum imbalances within the city to include areas less gifted with scenic sites,

The size of such parks is determined by the population in any given area in conjunction with the recreation standards of a city. For example, the city of Nairobi had a required park space of 2.6 acres per 1000 population as calculated using the 1969 population data. (City Engineers). Other international recreation standards are Britain (London) 10 acres per 1000 population, Japan (Manila) has 3 acres per 1000 population, United states (California) is 6 acres per 1000 population, New York is 7.2 - 7.8 acres per 1000 population. One cannot fail to notice the lack of uniformity and consistency of the recreational standards even in cities within the same country.

Nairobi is lucky to have with proper planning, ample land for all competing land uses. The aim of the relevant city authorities should be to use a portion of the limited resources to purchase large plots of land located outside the city centre for public uses before the land pressure becomes a serious problem. At this point in time, it would be an added advantage if generous

recreation standards were adopted for the city. This is true especially at the neighbourhood level where there is overcrowding in the few incidental open spaces and where children play on the roadsides. A higher neighbourhood park standard would be recommended.

Districts parks provide generous space for active recreation in an urban environment especially in scenic areas such as forests. The parks should be adjacent to major urban roadways for maximum accessibility. Ideal size is 50 acres and over, though as in neighbourhood parks the standard of provision varies. For Nairobi, 0.4 hectares (1 acre) per 1000 population is adequate.

For urban parks, the distinguishing mark are their unique quality. The location and size are therefore of less importance. Consequently, areas that meet strict quality standards should be reserved for public use, though the standard of provision is difficult to establish. But for the city of Nairobi, a minimum standard of 0.8 Ha/ 1000 population would be feasible.

But in general it is not possible to fix strict standards for open spaces for recreation purposes at the city as these must essentially develop from the opportunities in the environment.

5.5 Problems in Open Space Provision:

Some Policy Issue

The provision of urban public space in Nairobi is ambiguous and confusing. The law concerning provision is differently interpreted and there is a need to clarify the legality of the Planning Act and ordinance. For example, the rule that a developer has to surrender 10 percent of the total land to be developed free of cost for public purposes, recreation included is not adhered to all and even if it did then it seriously under provides for the high density areas.

There is a lack of guiding policies on planning and management of urban recreation areas. Majority of the recreational areas are neglected while in some parks there is no proper landscaping and maintenance. At the neighborhood level some open spaces are overgrown with bush and have been turned into dumping grounds. Also there are no clearly stated objectives of the recreation facilities as some of them are used for other purposes as opposed to the main purpose of recreation. There are no clear pricing policies and rates to be charged for entrance into some of the recreation areas and facilities. For example, the botanical garden in city park is supposed to have an entrance charge in some days and not others. Cost sharing would be a good idea if properly introduced into the parks so that they can generate an income and be able to maintain themselves.

There are poor environmental conditions in most of the

recreation areas. While most lack clean drinking water, the number of available toilets does not meet the demand of the visitors. Rubbish is poorly collected while Uhuru park has its artificial lake polluted through floating rubbish. A park like Kamukunji is poorly developed. Maintenance of a good environment in a park is essential to its appearance such as well planted trees, grasses, flowers, bushes, provision of shade, sitting places etcetera. Wind, dust, mud can be very detrimental to the comfort of the users. In addition, trees add to the quietness and repose of the environment and the nature-like feeling of the place.

Increased requirements for the rapid growth of Nairobi city has caused an impact on the recreation areas. Planning of the town implies that the distribution of highly competitive land uses should not subjugate some uses to the others. But this has been lacking in the planning and development of human habitat all over Kenya. Open space provision has suffered enormous deficiencies and most of all, what space has been provided has been faced with serious threat of encroachment by other supposedly more lucrative uses.

This happens both officially and unofficially. Officially policy makers have necessitated subdivisions of original recreational areas for other urban uses, while unofficially the recreational land has been used for other purposes other than what it was meant for.

As a result, 39 percent of the original recreational land in

Nairobi has been turned into other uses in the recent past years. (City Engineers 1981). It is imperative that the little recreation land the city already possesses, should not be encroached on. New urban structures coming up should go hand in hand with provision of open spaces. This can ensure that Nairobi remains the 'Green City in the Sun.'

CHAPTER SIX

Conclusion, recommendations and areas of further research

6.1 CONCLUSION

Passive recreation is predominant in the parks with activities such as walking, picnicking, sitting inside car, looking at trees and flowers, among others. Most visits last for a few hours and peak attendance is normally over weekends but on weekdays it is between the lunch hour. The research examined those factors that appeared to underlie the demand for this particular form of passive recreation.

Although, it has been noted that the effect of age on participation in passive recreation is much less than in active recreation, there is nevertheless a general tendency for participation to decline with age. It is low below the 15 year group and for those above 60 years of age, who despite having more leisure time, the constraints of age, immobility and low income are most important.

The study also demonstrated little differences between the sexes in park visiting though the number of males was on the higher side as compared to the number of female visitors. Statistics on marital status indicate that single people were more likely to visit the parks especially during weekdays, than married people who had a higher frequency of park visits during

the weekends.

The impact of education status on outdoor recreation reflects not only greater interest in what is seen as the role of recreation (either for pleasure, to pass time or lack of anywhere else to go) in such park visits. This variable is also seen in the relationship between it, occupation and income, which they themselves influence participation in recreational visits to the parks. Those with primary level or no education at all had participation levels well below average, while those with secondary level had above average visits. Higher education including university level had also below average participation.

It is clear that occupation was significant in influencing park visit with a higher participation level among the unemployed and students, while participation was lower among the self employed, housewives, retired and professional and managerial groups. Socio - economic groupings provided a more reliable indicator of the influence of economic factors. It is clear that there is a general link between participation in park visits and the income level of a visitor, with levels of participation decreasing with position on the socio - economic scale. Low income earners had the highest percentage of park visit and the high income earners had the lowest frequency, which is opposite of what is expected in most recreational pursuits where particular participation increases with income.

The importance of car ownership was significant in that majority of participants had no access to a car but relied mainly

on public transport or footing where parks were located within walking distance from their residential areas.

Again it can be concluded that passive recreation demonstrates a broad appeal among the city's inhabitants for while there are variations between different social groups in rates of participation, at least all groups are represented in the 'market' for this kind of recreation.

This study has assessed recreational facilities and open spaces in Nairobi city from a user oriented point of view. Nairobi is well endowed with parks but has them unfairly distributed within the city. It is established that although recreation is important in the lives of urban inhabitants, it is given low priority in most cities of the developing countries and Nairobi is no exception. This secondary consideration is demonstrated not only by the inadequacy of recreational facilities within the neighbourhoods but also the fact that open spaces available experience overcrowding, are poorly managed and face problems of misuse and competition from other land uses. Again most of the Nairobi residents lack exposure to the different recreational opportunities available within the city, such that most of the respondents did not know of other parks for example, the Arboretum.

Consequently, recreation is treated as a secondary land use activity as it provides no direct returns. The provision of recreational facilities is worsened by the failure of urban resources to meet the other requirements such as housing, health,

education, and other social services of the increasing urban population.

It has been illustrated that the demand for recreation in Nairobi is enormous. Demand is influenced by the size of the population, the income, education, amount of leisure time, relative position in the life cycle, accessibility to facility and the effect of location.

Location may affect the use of a recreational facility as it plays an important psychological role in determining individual demand for outdoor recreation. Parks located far from the centre of population such as the high density residential areas are underutilised. These parks are unfavourably distributed especially in the low income areas where costs of travel and the distance to the parks greatly reduces the number of visitors.. Most people in Nairobi are low income earners and constitute a bigger percentage of the potential demand for recreation. Their financial constraints limits their visits to the parks since this would be a luxury compared to the other necessities of life.

The supply of recreation facilities at the parks was inadequate. There were few public utilities such as sitting places, shelters, swings, general sanitation with poor refuse collection, inadequate toilets, lack of water taps and a general situation of inadequacy in maintenance and management of the parks. This was prevalent in almost all the parks and there were suggestions for more attractive facilities such as restaurants, children play equipments, more sitting places, improved security,

shelters, among others..

As the population of Nairobi increases and the city continues to spread, the greater will be the need for adequate provision of spaces of all kinds. Nairobi is growing faster than the local government authorities and land developers can provide recreational and other social amenities. Problems of recreation in the city are being compounded by the increasing population and fast growth of the city with only the original parks catering for outdoor recreation. It is therefore imperative that to maintain this open spaces the city already possesses, no encroachment should be allowed into these areas.

6.2 RECOMMENDATIONS

Local authorities play an important role in the provision of many classes of recreational facilities. They provide parks, children's playgrounds, playing fields for games among others. But also a large proportion of open spaces is provided by employers and private clubs. In practice, problems often arise in the provision of recreation facilities and they may be so demanding as to prevent an adequate level of supply from being established. Golf courses for instance require such large areas of land (40 - 60 hectares for an 18 hole course) that it is often impossible to locate them close to urban residential districts. Children's playgrounds need to be sited in the midst of residential areas and yet the noise of children playing for long

periods of time can cause considerable annoyance to neighbouring residents. Parks are frequently sited in rather out of the way locations because land with suitable physical characteristics but in rather remote locations has come on to the land market and there is an absence of suitable land close to heavily populated areas where parks are more required.

As the urban population increases and towns and cities continue to spread, the greater will be the need for adequate provision of open spaces of all kinds. Furthermore, expansion of the open space should proceed concurrently with the spread of cities and the sites should be acquired or at least be earmarked well ahead of urban expansion while the land is still available and comparatively low priced. In addition the recreation potential of green belts needs to be thoroughly explored and more fully utilised so that in addition to restraining urban sprawl, these protected areas may make positive contributions to the enjoyment of city dwellers.

The changing pattern of land use in the central areas of Nairobi may create different open space needs. Inner urban areas fairly serving the needs of the residents of former town houses may no longer be entirely relevant, but in their place smaller open spaces as settings to buildings or groups of buildings connected by landscaped walkways might be better suited to today's needs.

Some have argued that with the increasing prosperity, mobility and leisure time of urban populations, the need for additional

open space in towns and cities declines as people are able to visit more frequently more distant recreational resources. Yet - of Nairobi's residents in common with many more of other cities, most do not have access to cars. For them a journey to a distant resource could often be both difficult and costly and this adds weight to the need for an adequate urban open space network that is easily accessible.

It seems essential to show the scale of demand if a convincing case is to be put forward for diverting resources to recreation be they land, funds, personnel from other socially important services such as education, health or housing, all of which face a shortage of resources. Periodic surveys are needed say at either 10 year intervals to show how people are spending their leisure time and what changes are occurring in their use of leisure.

Urban dwellers need open spaces even if it cannot be justified on purely economic grounds. Trees, shrubs, grass and flowers all serve to soften the harshness of the urban scene and to make the lives of urban dwellers more tolerable. A city without its public parks, gardens is unthinkable.

Admittedly, there are strong physical and practical difficulties inherent in a policy which aims at securing the maximum open space provision in the central area of a large capital city like Nairobi. One major obstacle is the high price of land in these locations and the absence of direct monetary returns from the open space provision. The introduction of even

relatively small areas of grass and trees into new shopping developments, between new office blocks and around new civic, educational and other public buildings would have the most beneficial effect in humanising the urban scene and providing a pleasant contrast to the hard and artificial surfaces of building and paved areas.

Many urban parks are no longer conveniently sited in relation to the dwellings of the population which they are supposed to serve. Much thought needs to be given to the problem of integrating parks with the urban structure. There is a need to modernise the parks such as installing flood lights, providing a whole host of interesting facilities such as restaurants, libraries to help liven up our parks and provide many more facilities with some revenue producing for old and young alike. In order to incorporate all these desirable features some zoning of large existing parks and laying out of new parks will be necessary.

The Greater London Council (1968) sees the need for a hierarchial structure of park provision based on small parks of at least 2 hectares close to residential areas, intermediate parks of not less than 20 hectares situated within about 1.5 km of every home and larger parks of at least 60 hectares for people travelling distance up to 8 km. This hierarchial distribution may prove far too much in practise but it serves a useful purpose by drawing attention to the need for rationalised provision and the need for incorporating suitable landscaping through redeveloped sectors in the form of sheltered sitting places, children play

areas, pleasant view, among others.

With an increasing population and a rising competition for land for a number different uses, it is important that resources allocated to recreation should be utilised as effectively as possible. It seems again the structure of Nairobi City Commission is poorly suited to serve the needs of park users. The division of parks responsibility between the central government and the local government has led to various levels of maintainance of parks and to the lack of an overall co-ordinated policy. Nairobi city boundary is irrelevant to present day needs as more and more people live outside the city and problems of planning roads, recreation, housing and education all need to be considered in a wider context - possibly in the context of a city region.

Another problem is that co-ordination of public and private investment in recreation industry can no longer be expected to provide in full all the diverse and expanding recreational needs of its working population. Conversely many industrial based recreational facilities are under utilised and ought, through agreements with local authorities to be more readily available to the community at large. It seems likely that public authorities will take an increasing part in recreation provision but commercial interests and voluntary organisations should be encouraged to participate with a considerable interest. The local authority in addition to being a major provider of facilities also has an important role as a co-ordinator preferably administering large and more viable areas than at present with

support from the central government. Recreational resources must be suitably located and properly managed if their full potential is to be realised. Recreation management includes such aspects as the design and maintenance of facilities like litter receptacles, park benches, footpaths, fences and surfaces of various kinds. The most successful and most acceptable techniques of visitor management are invariably the most subtle, persuasive and informative. For example, things like signs that explain the reasons for restrictions can be successful in guiding people from misuse of parks.

In recreation management, there is need to know what is wanted, where it can be provided and how it can be provided. Management of recreation areas should aim to secure optimum use, protect recreational facilities from misuse and provide an effective information service.

There are two financial aspects in the provision of recreational facilities. The expenditure incurred in supplying the facility and subsequently maintaining and operating it and the charge if any to be made for its use. The role of local authorities and the central government in the financing of recreational facilities is a complicated one.

In the past there has been a general reluctance on the part of local authorities to charge for access to public parks and other recreational facilities mainly using the argument that this could preclude the very people who would stand to benefit most from them. Difficulties of matching supply and demand through lack of

finance, coupled with the increasing prosperity and mobility of the population, calls for review on the pricing policy. If entry charges produced a reasonable rate of return on capital, the local authority might then be able to provide more and better facilities and to ease the congestion problem. Charges could also operate as regulators of demand and their introduction would assist in staggering the demand and in reducing weekend pressures. Making parks pay for themselves would give greater incentives to develop new ventures and by making one or two parks in a town economically viable, it would allow more money to be spent on parks for passive recreation. With large parks it should be possible to separate the park into two distinct sections, one containing a variety of facilities and attracting charges such as boating and the other catering for people who wish merely to sit and walk and whom no charge should be levied.

There should be plans for improved provision of recreation in the urban life particularly for those in the lower socio-economic groups whose income is unlikely to rise substantially and who do not own cars. Immense value would be derived from an interlinked hierarchy of open spaces from small neighbourhood parks and playgrounds, through town parks to regional open spaces on the urban fringe. Waterfront recreation resorts should be encouraged in Nairobi. This should be in areas around the Nairobi dam, and along the river valleys like the Nairobi river where a co-ordinated system of pedestrian paths and hiking trails should be planned and provided along the riverine. Trees should be planted to provide a more natural environment.

Nairobi is a tourist attraction in itself. This value will be considerably reduced if the facilities provided are of poor quality, out of character, inconveniently situated or patronised by incompatible clients. Recreation facilities are important features and policies should be worked out to ensure that developments are of aesthetic value. The establishment of the national monuments are attempts towards this requirement and they should be encouraged. The NCC should develop policy guidelines and acceptable standards for recreation areas and facilities, and strictly enforce the recommended standards.

6.3 AREAS FOR FURTHER RESEARCH

The major purpose in undertaking this research project and in particular the analysis of the relative significance of different profile variables that influence park visit or outdoor recreation behaviour was to provide guidelines for wider studies at the national and more particularly, the regional and sub regional levels. It is certain that the relative importance of the different profile characteristics in influencing recreation behaviour will change over the long run. As more and more children go on to further education after school, for example, the strength of this variable in formulating behaviour is likely to change significantly in relation to other variables.

Therefore it is important to set ground rules which will facilitate comparability between future studies and which will provide some systematic data for use in forecasting models of one kind or another. Thus since ground rules cannot be established for posterity and are by nature rules of behaviour that change as society changes, then future studies should include this aspect of the relative significance of different profile variables in affecting recreation behaviours which should be repeated at intervals of not more than about ten years.

Further work can also be undertaken with the profile data from the present study. The validity of the profile characteristics themselves could be further ascertained through the use of other tests besides chi - square and 'F' test, for instance, Spearman, Kendall or Kruskal - Wallis test where appropriate.

Future studies should also look into the household survey using questionnaires to interview household heads. Such an interview using a sample would gather information about the household, its composition, type of housing, ownership of household goods and so on and then the interview would gather data about the recreation activities of that household. One of the objectives of such a survey would be to investigate the impact of recreation supplies upon demands. If the survey is carried out in two contracted areas (in terms of available facilities) it can show the significance of supply in creating or stimulating demands.

Further areas of research can be into an assessment of pricing

policy, management and planning standards, and the possibility of public participation in the provision of recreation facilities. There is also a need to look into designs and development plans of recreation areas.

Further research can also be undertaken by the use of before and after surveys of activity - opportunity relationships rather than to compare socially homogeneous areas which have different recreation opportunity structures. The approach would be first to select an area in which a major new recreation opportunity was in the process of development. For example in Eastlands area of Nairobi which lacks recreational facilities there are proposals to serve the residents of this areas. A survey could be carried out before the development was complete and again after it was in full operation. This would make it possible to identify changes in recreation patterns stemming directly from the provision of the new opportunity.

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APPENDIX 1

NUMBER

QUESTIONNAIRE FOR PARK USERS

1. DATE OF INTERVIEW ----- TIME -----

2. PLACE OF INTERVIEW -----

PERSONAL AND SOCIAL PROFILE OF RESPONDENT

3. LOCAL AREA (HOME AREA) OF RESPONDENT

DISTRICT (TOWN) -----

LOCATION -----

4. CURRENT RESIDENT OF RESPONDENT -----

5. AGE

UNDER 15 YRS -----

15-19 YRS -----

20-34 YRS -----

35-44 YRS -----

45-64 YRS -----

65 YRS AND OVER -----

6. MARITAL STATUS: SINGLE -----

MARRIED -----

7. LEVEL OF EDUCATION: NONE -----

PRIMARY -----

SECONDARY -----

HIGH SCHOOL -----

UNIVERSITY -----

OTHER (SPECIFY) -----

8. WHAT IS YOUR OCCUPATION:

EMPLOYER -----

EMPLOYMENT STATUS:

SELF-EMPLOYED -----

HOUSEWIFE -----

STUDENT -----

UNEMPLOYED -----

RETIRED -----

STILL AT SCHOOL

OR COLLEGE -----

OTHER (SPECIFY) -----

9. WHAT IS YOUR INCOME?:

NONE -----

0 - 999 -----

1000 - 1999 -----

2000 - 2999 -----

3000 - 3999 -----

4000 - 4999 -----

5000 - and above -----
PER MONTH.

10. HOW DID YOU TRAVEL TO THE PARK TODAY?

CAR -----

MOTOR CYCLE -----

BUS -----

BICYCLE -----

FOOT -----

OTHER MEANS -----

11. IF YOU CAME BY CAR WERE YOU

+ PASSENGER -----

DRIVER -----

12. HAVE YOU A CAR: YES -----

NO -----

13. HAVE YOU COME TO THE PARK STRAIGHT

FROM WORK -----

FROM HOME -----

14. GIVE APPROXIMATE DISTANCE TRAVELLED

0.2 KM -----

2-4 -----

4-6 -----

6-8 -----

8-10 -----

OVER 10 KM -----

15. GIVE APPROXIMATE NUMBER OF VISITS TO THIS PARK PER MONTH

0-1 -----

2-5 -----

6-10 -----

11-20 -----

OVER 20 -----

16. WHEN DO YOU VISIT MOSTLY?:

ON WEEKDAYS -----

ON WEEKENDS -----

17. WHAT ACTIVITIES DO YOU TAKE PART IN

STROLLING -----

LOOKING AT TREES, FLOWERS, LAKE -----

WALKING THROUGH TO ELSEWHERE -----

PICNICKING -----

PLAYING GAMES -----

SITTING INSIDE CAR -----

SITTING OUTSIDE CAR -----

EXERCISING DOG -----

**PATHOGENESIS AND IMMUNE RESPONSE TO CASEOUS
LYMPHADENITIS IN GOATS.**

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UNIVERSITY LIBRARY.**

**A Thesis submitted in fulfilment for the Degree of Doctor of Philosophy In
Veterinary Pathology and Microbiology in the University of Nairobi.**

Department of Veterinary Pathology and Microbiology

Faculty of Veterinary Medicine

University of Nairobi

Kenya.

July, 1995

DECLARATION.

This thesis is my original work and has not been submitted for a degree award in any other University.



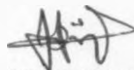
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This thesis has been submitted for examination with our approval as University supervisors.

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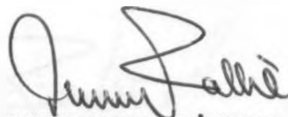
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Dedication.

This thesis is dedicated to my daughter "**Tuti**" whose boundless energy was a constant challenge.

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SUMMARY.

Effective immunisation against caseous lymphadenitis (CLA), caused by *Corynebacterium pseudotuberculosis*, in sheep and goats is hindered by inadequate information on the pathogenesis of the disease and the immune response against the organism. An investigation into the pathogenesis and immune response to the causative agent in goats was studied. The pathogenesis was investigated by :- examination of natural CLA lesions in sheep and goats, experimental infection of goats through different routes, determination of the minimum dose of infection for development of CLA lesions, determination of the incubation period for development of CLA lesions, and determination of the ability of two factors, (the surface lipid and the extracellular toxin), and three whole- cell preparations of *C. pseudotuberculosis* to produce CLA lesions. The immune response was investigated by serological analysis of sera from both naturally and experimentally infected animals using bacterial agglutination test (BAT) and the haemolysis inhibition test (HIT).

CLA lesions in goats and sheep in Kenya were found to be mainly in prescapular followed by precrural lymphnodes. Lesions were also observed in parotid and submaxillary lymphnodes, the lungs and subcutaneous tissue. The prevalence of CLA in Kenya was found to be 7.1% and 1.8% in goats and sheep respectively. *C. pseudotuberculosis* was isolated from 79.4% of lesions. Other microorganisms either in pure or mixed cultures (*Bacillus* spp, *Streptococcus* spp, *Staphylococcus* spp, coliforms and *Pseudomonas* spp) were isolated from 11.1% while 9.5% of lesions were found sterile.

Grossly, CLA lesions were either caseous, granular or-in some cases calcified. Microscopically, the lesions were those of typical encapsulated granulomatous reactions. Evidence from early lesions indicated that the necrotic centre was composed mainly of dead mononuclear cells. Evidence of resolution of lesions by formation of granulation tissue was also observed.

In serological analysis, the BAT and HIT tests were found to detect 87.7% and 80.7% respectively of the infected animals while the combined tests could detect 89.5%. The specificity of the tests was calculated as 88% for BAT, 97.2% for HIT and 87.0% for the combined tests.

Investigation into the routes of infection indicated that CLA could be induced by subcutaneous or intradermal injection of caseous abscess material or by smearing the caseous pus on scarified skin but not on intact shaved skin. Haematological findings indicated that a leucocytosis, characterised by a neutrophilia, occurred during the first three weeks post infection but no significant changes occurred in other parameters (PCV, Hb and total plasma protein concentration). Positive BAT and HIT titres could be detected two weeks post infection. Antibody response was dependent on the route of infection, with a decrease from intradermally infected to subcutaneously infected to scarified skin infected.

The minimum dose of *C. pseudotuberculosis* for induction of CLA lesions through intradermal route was 10^2 colony forming units (cfu), per lymphnode. Doses

of 5×10^1 cfu did not induce CLA lesions. Serological analysis results indicated that antibody response decreased with decrease in dose of infection. Animals infected with doses equal to or less than 10^3 cfu and doses of 10^2 cfu did not develop positive BAT and HIT titres respectively although they developed CLA lesions. This was an indication that low doses of *C. pseudotuberculosis* may induce CLA lesions without eliciting a detectable antibody response.

The incubation period for development of CLA lesions was between 8-9 days after intradermal infection with caseous pus material or after infection with caseous pus on scarified skin. Microscopic lesions could, however, be detected as early as two (2) days post intradermal infection. This indicated that although CLA is chronic in duration, it is subacute in development. BAT and HIT titres were recorded from 15-17 days and 20-25 days respectively, post infection. This was an indication that serology may be of no value in detection of CLA during the period 2-3 weeks after infection.

Animals injected intradermally with the waxy lipid or extracellular toxin preparations developed abscesses at injection sites as well as granulomatous lesions in draining regional lymphnodes. The lymphnode lesions were similar to the early-stage lesions produced by the live organism. The heat-treated toxin produced no lesions. Animals injected with the heat-killed, formalin-killed or ether/ethanol extracted cells developed abscesses at the injection sites only. It was concluded that both the waxy lipid and the extracellular toxin play a major role in development of caseous lymphnode lesions. Antibodies were detected in animals injected with the

potent toxin, heat- killed and formalin killed cells and with ether/ethanol extracted cells but not in animals injected with either the waxy lipid or heat-treated toxin. The best antibody response was elicited by the ether/ethanol extracted cells. This was an indication that ether/ethanol extraction preserved antigenicity of *C. pseudotuberculosis* better than either formalin or heat treatment.

1. INTRODUCTION.

Caseous lymphadenitis (CLA) is a disease of world wide importance in sheep and goats. It is caused by the intracellular bacterial parasite, *Corynebacterium pseudotuberculosis*. The disease is characterised by suppurative lymphadenitis especially of the peripheral lymphnodes (Addo and Eid, 1978; Jubb *et al.*, 1985). Occasionally the condition becomes generalised to involve internal lymphnodes and visceral organs (Renshaw *et al.*, 1979; Jubb *et al.*, 1985,). When a large number of lymphnodes are affected or when dissemination into visceral organs has occurred, varying degrees of debilitation are common (Addo and Eid, 1978). This chronic debilitating condition is indistinguishable from other chronic diseases. The resultant economic losses are due to decreased production and reproduction as well as condemnation of carcasses during slaughter (Renshaw *et al.*, 1979; Hein and Cargill, 1981; Batey, 1986a).

Control of CLA has been a major concern in the sheep and goat industry. Once introduced into a herd or farm, the disease is almost impossible to eradicate. The organism can survive for several weeks on common barnyard fomites especially in the presence of organic matter (Augustine and Renshaw, 1982a; 1982b; 1986). Chemotherapeutic treatment of affected animals is not effective due to the poor penetration of antimicrobial drugs into the usually capsulated lesions (Ashfaq and Campbell, 1979). Effective control of CLA should therefore be approached through preventive immunisation. Although regular cleaning and disinfection of housing can remove the organism, contamination by ruptured abscesses soon occurs.

Attempts to immunise animals by vaccination have however been largely unsuccessful (Cameron *et al.*, 1972; Abdel-Hamid and Zaki, 1973; Cameron and Bester, 1984; Brogden *et al.*, 1984; Brown *et al.*, 1986a; Holstad *et al.*, 1989). Although vaccinated animals tend to resist the lethal subacute disease after challenge, they are unable to resist the abscess -

forming chronic condition that is characteristic of CLA. A vaccine developed for sheep by Commonwealth Scientific and Industrial Research Organisation (CSIRO) laboratories in Australia, "Glenvac", has been found to have low efficacy (Baxendel, 1984). More research into the pathogenesis of CLA and the hosts immune response to the organism would therefore be necessary. This information is essential in development of an effective control programme for CLA.

The current status of CLA in Kenya is not known. Shirlaw and Ashford (1962), observed lymphnode swellings in an exotic sheep flock and reported isolation of a *Micrococcus* organism. Small ruminants in the country are reared mainly in open rangelands. With increasing pressure on land and also the necessity for conservation, production is expected to be more and more intensive. CLA is a major problem where intensive husbandry of small ruminants is practised (Gilmour, 1990).

CLA primarily affects the superficial lymphnodes but animals can have internal undetectable lesions (Hein and Cargill, 1981; Anderson and Nairn, 1985; Batey *et al.*, 1986). The morphological appearance of the lesions is different in sheep and goats (Ayers, 1977). In sheep, the abscesses have a characteristic lamellated appearance and often calcified while in goats the exudate is usually uniformly pasty and rarely calcified (Brown and Olander, 1987). The aetiological agent *C. pseudotuberculosis* is not always recovered from the lesions. Other microorganisms, thought to be secondary invaders or contaminants, are sometimes isolated (Renshaw *et al.*, 1979). Similarly, antibodies to *C. pseudotuberculosis* are not always detectable in affected animals and *vice versa* (Brown *et al.*, 1986b). Current information on the relationship between the presence of CLA lesions, the presence of the infectious organism in the lesions and the antibody status of the animals is inadequate. The use of serology in identification of infected individuals need to be evaluated.

Infection by *C. pseudotuberculosis* takes place through skin wounds such as those inflicted during shearing in sheep and by thorns, barbed wire and other sharp objects in goats (Nairn *et al.*, 1977; Addo and Eid, 1978; Hein and Cargil 1981 Brogden *et al.*, 1984). The source of infection is pus from discharging ruptured lymphnodes or subcutaneous abscesses, which directly contaminate wounds on other animals or indirectly through contamination of environment (Augustine *et al.*, 1982).

The assessment of vaccination as a means of control is hindered by inconsistency in experimental disease induction/challenge systems. The cause of the inconsistency appears to be the choice of route and dose of infection. There is also no information on relationship between the route of infection and antibody response.

The reported dosage of *C. pseudotuberculosis* sufficient to cause abscessation of regional lymphnodes varies widely. Abdel- Hamid and Zaki (1972), used 0.01- 0.25 mls of a 48 hour broth culture ; Holstad and Teige (1988b), and Ashfaq and Campbell (1979), used 1×10^6 colony forming units (cfu); Maki *et al.*, (1985) reported a minimum dose of 1×10^4 ; and Pepin *et al.*, (1988) used a dose of 1×10^8 cfu. The dose may be influenced by the route of infection and the pathogenicity of the strain used. Information on the dose of infection for CLA is essential in understanding the natural transmission of the disease and also in establishing immunisation and or challenge systems. Information on the relationship between the dose of infection and the immune response is also lacking. This would give an indication as to whether or not some dosages can cause lesions without eliciting antibody response and *vice-versa*.

Caseous lymphadenitis is described as a chronic disease. There is however no clear information on the incubation period for development of lesions. There is also no information on the pathogenesis of the lesions in the lymphnodes, leading to the formation of gross

lesions. The incubation period is an important epizootiological factor. It gives an indication of how soon the disease can be detected after exposure and also how soon an infected animal can transmit the disease. Cellular changes in lymphnodes are an indication of the host's cellular defence mechanism. The relationship between the incubation period and antibody response has not been investigated. This would give information on the usefulness of serodiagnostic tests, at various stages of infection.

The pathogenic components of *C. pseudotuberculosis* are believed to be the surface waxy lipid and the extracellular toxin. The lipid contains corynomycolic acids similar to the mycolic acids of *Mycobacteria* (Barksdale, 1981). The substance protects the organism from intracellular degradative enzymes, thus allowing the organism to survive intracellularly within phagocytes (Hard, 1972). The lipid has also been considered to be the pyogenic factor responsible for formation of abscesses through leucocyte cytotoxicity (Carne *et al.*, 1956; Hard, 1975; Muckle and Gyles, 1983; Tashjian and Campbell, 1983). There is no information on whether or not the substance can produce lymphnode abscesses. There has been no investigation into the role of the organism's extracellular toxin in the formation of CLA lesions, although it is thought to contribute through intracellular cytotoxicity (Burrell, 1978a). The toxin, a phospholipase D, is thought to act as a permeability factor (Jolly, 1965a; Carne and Onon, 1978). The site of action of the enzyme is the sphingomyelin component of the capillary cell membrane (Bernheimer *et al.*, 1980).

The objectives of the study were:-

1. Determine the prevalence and the pathological manifestation of CLA in goats and

sheep, the morphological and the bacteriological content of the lesions, the antibody status of affected animals and the usefulness of serological tests in detection of naturally infected animals.

2. Investigate the possible routes of infection for CLA and the resultant clinical and serological changes.
3. Determine the minimum dose of *C. pseudotuberculosis* necessary to establish CLA lesions in draining lymphnodes and the relationship between the dose of infection and antibody response.
4. Determine the incubation period for the development of CLA lesions in draining lymphnodes and the relationship between the incubation period and the clinical and serological changes.
5. Examine the ability of the surface lipid and the extracellular toxin of *C. pseudotuberculosis* to produce lymphnode lesions and the serological response to the substances.

2.0. REVIEW OF LITERATURE.

2.1. The organism.

2.1.1. History and Nomenclature.

The organism was first isolated in 1884 by a French veterinarian, Edmond Nocard, from a case of bovine lymphangitis (Benham *et al.*, 1962). A similar bacterium was isolated three years later by Hugo Van Preisz in Budapest from a renal abscess in a sheep (Collins and Cumming, 1986). Subsequently the organism became known as the Preisz-Nocard bacillus. Preisz later, (1888) described the organism in detail and named it *Bacillus pseudotuberculosis ovis* (Collins and Cumming, 1986). Buchanan, (1911) simplified the name to *Bacillus pseudotuberculosis* by dropping the subspecies designation and Ebersson (1918) renamed it *Corynebacterium pseudotuberculosis* after it was noted that the organism had a distinctly diphtheroid morphology (Benham *et al.*, 1962; Collins and Cummings, 1986). In the Bergey's manual of 1923, the organism was named *Corynebacterium ovis* but on realization that the organism had a wide host range, it was officially named *Corynebacterium pseudotuberculosis* in 1948. However, the name *C. ovis* is still used as a synonym (Collins and Cumming 1986). The species designation "pseudotuberculosis" is an attribute to the lesions, "false tubercles" produced by the organism, which resemble those of tuberculosis.

2.1.2. Morphology and staining

The morphology of the bacterium has been adequately reviewed by Benham *et al.*, (1962) and Brown and Olander, (1987). The organism, together with other members of the genus *Corynebacteria*, is referred to as a diphtheroid due to the beaded, club-shaped appearance. It is a non-motile, non-spore forming, straight to slightly curved, very short Gram-positive rod. Often, it has club-shaped ends (Hard, 1969a). It measures 1-3 μ m by

0.5-0.6 μm (Brown and Olander, 1987). It is highly pleomorphic and varies from coccoid to bacillary form in natural lesion to coccobacillus in culture (Carne, 1939; Nadim and Farid, 1973; Brown and Olander, 1987). Branching forms may be observed in old cultures (Carne, 1939; Nadim and Farid, 1973). The large forms contain irregularly- staining granules referred to as metachromatic granules (Carne, 1939; Purchase, 1944; Brown and Olander, 1987). The organism is non-acid fast (Carne, 1939; Purchase, 1944). It undergoes snapping binary fission in which the daughter cells produce a palisade or "chinese letter" arrangement.

The organism contains large amounts of a waxy lipid external to the cell wall (Carne *et al.*, 1956; Jolly, 1966; Hard 1969a) which may be several times thicker than the actual organism (Hard, 1969a) and may account for as much as 11.3% dry weight of the bacterial cell (Ionedá and Silva, 1979). The waxy lipid consists of mycolic acids, referred to as corynomycolic acids, similar to those found in *Mycobacterium* species (Lancave *et al.*, 1967). The waxy lipid is responsible for the spontaneous autoagglutination of the organism in suspension (Keskinetepe, 1976a).

The autoagglutination can be inhibited by detergents such as Tween 80 (Keskinetepe, 1976a) and the waxy lipid is extractable with organic solvents such as ether/ethanol or petroleum spirit, without eliminating the viability of bacterial cells (Carne *et al.*, 1956).

2.1.3. Cultural characteristics.

The organism is a facultative anaerobe that grows slowly. After 24 hours, colonies on solid media are pinpoint greyish-white. After 48 hours they are greyish-white, umbonate, about one mm in diameter and with a smooth shiny surface which on further incubation becomes matt. On blood agar, colonies are yellowish and are surrounded by a narrow zone of beta-haemolysis. Further incubation produces another

wider zone of partial haemolysis especially on incubation at 4°C (Zaki, 1965a; Lovell and Zaki, 1966). Colonies have a waxy or butyrous consistency, due to the high lipid content and are not easily emulsifiable (Nadim and Farid, 1973). In broth, *C. pseudotuberculosis* grows as a pellicle due to the hydrophobic nature of the cell surface (Carne, 1939). Strains with less amounts of lipid are less hydrophobic and have less tendency to form pellicles (Jolly, 1966; Hard 1969a). Less hydrophobic colonies can be obtained by repeated subculturing (Hard, 1969a Barakat *et al.*, 1970).

2.1.4. Biochemical characteristics.

C. pseudotuberculosis forms acid from a number of carbohydrates viz. glucose galactose, maltose and mannose (Barksdale, 1981; Muckle and Gyles, 1982). Carne, (1939) and Nadim and Farid, (1973) found all isolates from cattle and sheep to ferment glucose, fructose and glycerol. The organism is strongly catalase positive. Most strains produce urease (Keskintepe, 1976b; Songer *et al.*, 1988) but attenuation by repeated subculturing has been found to produce urease negative strains (Barakat *et al.*, 1970; Burrell, 1979).

Nitrate reduction is variable. Strains isolated from sheep and goats tend not to reduce nitrates to nitrites whereas those isolated from horses invariably do so (Brown and Olander, 1987). Biberstein *et al.*, (1971) found bovine isolates to reduce nitrates. *C. pseudotuberculosis* strains can therefore be separated into two biotypes on this basis i.e a nitrate-reducing biotype that infects mainly horses and a nitrate negative biotype that infects mainly cattle, sheep and goats (Biberstein *et al.*, 1971; Barakat *et al.*, 1984; Songer *et al.*, 1988). The difference between the two biotypes is correlated with serological difference in gel precipitation reaction using sodium desoxycholate - extracted antigen (Barakat *et al.*, 1984) and by results of restriction endonuclease analyses (Songer *et al.*, 1988).

2.1.5. Metabolic products.

C. pseudotuberculosis produces elaborates an exotoxin detectable in cell-free culture supernatant (Carne *et al.*, 1956). The exotoxin is a phospholipase D (Soucek *et al.* 1967; 1971) and functions as a sphingomyelinase, splitting sphingomyelins, an important cell membrane component into ceramide phosphate and choline (Soucek and Souckova, 1974; Carne and Onon, 1978; Bernheimer *et al.*, 1980). The exotoxin has similar activity to the toxic enzyme found in the brown recluse spider, *Loxosceles reclusa* (Bernheimer *et al.*, 1985). The exotoxin has been characterised as a glycoprotein with an amino acid sequence similar to that of collagen (Onon, 1979). It has a molecular weight of about 31,000 daltons (Hsu, 1984; Bernheimer *et al.*, 1985). It is found in the cytoplasm and in smaller amounts in the cell wall. In culture, maximum production of exotoxin occurs at 30°C (Doty *et al.*, 1964). It is inactivated by heat, acid pH (less than 5) and formalin (Carne, 1940; Zaki 1965a). Phospholipase D splits membrane sphingomyelin of erythrocytes to cause partial haemolysis (Zaki 1965a). Chilling or decreasing the pH to below 6 will convert the partial haemolysis to frank haemolysis (Burrell, 1979). The exotoxin of *C. pseudotuberculosis* interacts with metabolites from other organisms to produce varying biological phenomena on animal erythrocytes. It inhibits haemolysis by the β -haemolysin of *Staphylococcus aureus*, also a sphingomyelinase, by competitively occupying the target site on the erythrocyte membrane (Zaki, 1965b; Lovell and Zaki, 1966; Linder and Berheimer, 1978). This phenomenon is the basis for the antihaemolysin inhibition test (AHI) for detection of antibodies to *C. pseudotuberculosis* exotoxin (Zaki, 1968). *C. pseudotuberculosis* phospholipase D acts in concert with phospholipase C of *Rhodococcus equi* to produce synergistic haemolysis. The phospholipase C of *Rhodococcus equi* further degrades the ceramide phosphate produced from cleavage of sphingomyelins by phospholipase D

(Bernheimer *et al.*, 1980). This causes sufficient damage to cell membrane to cause cell lysis. The synergistic haemolysis is inhibitable by antiserum to either substance (Knight, 1978; Lund *et al.*, 1982a; Kuria, 1984). Inhibition of the haemolysis by antiserum to phospholipase D forms the principle of the synergistic haemolysis inhibition test, (Knight, 1978). All strains of *C. pseudotuberculosis* produce exotoxin albeit in varying amounts (Carne, 1940; Muckle and Gyles, 1982). *C. pseudotuberculosis* also produces a haemolysin, responsible for the narrow zone of β -haemolysis observed in blood agar cultures. The haemolysin is therefore, a different substance from the phospholipase D (Carne, 1939). It cannot however be obtained free in culture supernatant but is closely linked to the bacterial cells (Carne, 1939). The nature of the haemolysin has not been established. It has been suggested to be a phospholipase A (Soucek and Souckova, 1974).

C. pseudotuberculosis is said to produce an allergen, which can be harvested from cells grown in trypticase soy broth, by precipitation with trichloroacetic acid (Langenegger *et al.*, 1987). The allergen has so far not been characterised.

2.1.6. Pathogenicity of *C.pseudotuberculosis*.

Corynebacterium pseudotuberculosis causes suppurative lesions in a variety of animal species, including humans (Benham *et al.*, 1962; Blackwell *et al.*, 1974; Handerson, 1979; Keslin *et al.*, 1979; Goldberger *et al.*, 1981). The organism causes specific disease syndromes in sheep, goats, horses and to some extent, cattle. In sheep and goats, it causes caseous lymphadenitis, characterised by abscessation mostly of superficial lymph nodes (Jubb *et al.*, 1985). In horses, the organism causes ulcerative lymphangitis. This is an excoriating suppurative inflammation of lymphatic vessels usually confined to the distal portions of the limbs (Gillespie and Timoney, 1981). In the same species, the organism has been found to

cause chronic ventral abscesses (Hughes and Biberstein, 1959; Miers and Ley, 1980), abortion (Miers and Ley, 1980) and mastitis (Addo *et al.*, 1974). In cattle the organism has been found to cause mastitis and abscesses located intradermally or within lymphnodes (Biberstein *et al.*, 1971; Adekeye *et al.*, 1980; Addo *et al.*, 1980; Kariuki and Poulton, 1982; Barakat *et al.*, 1984). Another domestic ruminant affected is the dromedary (Esterabadi *et al.*, 1975 Domenech, 1980;).

2.1.7. Mechanism of pathogenicity.

The pathogenic mechanism of *C. pseudotuberculosis* has been attributed to the surface waxy lipid and the extracellular exotoxin. The organism is a facultative intracellular parasite (Jolly, 1965c; Hard, 1972; Tashjian and Campbell, 1983). This ability is facilitated by the waxy lipid. The substance protects the organism from digestion by intracellular degradative enzymes (Hard, 1972). The substance also has toxic properties. It is dermonecrotic when injected intradermally (Carne *et al.*, 1956). Leucocytes in tissue culture fed with the substance adsorbed onto activated charcoal were found to undergo rapid degeneration and death (Carne *et al.*, 1956; Hard, 1975). Hard, (1972) and Tashjian and Campbell, (1983) examined the ultrastructure of mouse and goat macrophages respectively that had phagocytosed *C. pseudotuberculosis*. The organism was found to be viable within the phagolysosomes. Hard also observed damage to the phagolysosome limiting membrane. He attributed the damage to toxicity of a substance on the organism's surface. Similar ultrastructural damage to membrane components were observed in macrophages that had phagocytosed a solution of the waxy lipid extracted by petroleum/ether (Hard, 1975). Heat-killed *C. pseudotuberculosis* injected intraperitoneally in mice produced sterile abscesses (Zaki, 1976). From this observation, it was concluded that the waxy lipid was the pyogenic

factor of *C. pseudotuberculosis* and that it was heat-stable.

The amount of cell wall lipid in a *C.pseudotuberculosis* strain is related to its virulence (Jolly, 1966; Hard, 1969a; Muckle and Gyles, 1983). Muckle and Gyles, (1983), inoculated 25 strains into mice intraperitoneally and noted that the strains with the greatest amount of lipid content, as determined by chloroform/methanol extraction, produced the most abscesses. Burrell, (1978a) similarly found a correlation between the lipid content of strains and their ability to produce lesions in popliteal lymphnodes of sheep. The cytotoxic effect of the waxy cell wall lipid appear not to affect rabbit phagocytes, which are able to rapidly degrade virulent organisms (Hard, 1975).

The extracellular toxin phospholipase D, is another important pathogenic factor of *C. pseudotuberculosis*. When injected subcutaneously in rabbits and guinea pigs, Carne (1940), found it to cause extensive, haemorrhagic necrotic lesions. Jolly (1965a), demonstrated that the exotoxin functions as a permeability factor. Injection of exotoxin intradermally caused oedema of interstitial spaces, swelling of endothelium and occasional thrombosis. When injected intraperitoneally in mice it caused increased protein exudation into the peritoneal cavity, and corneal opacity when injected into the avascular cornea in sheep. Jolly (1965a) concluded, from these observations, that the target site of phospholipase D was the vascular bed. Carne and Onon (1978), demonstrated that the exotoxin degraded sphingomyelins from sheep and rabbit aortae into ceramide phosphate and choline. They concluded that the exotoxin served the organism as a permeability factor.

2.1.8. Antigenicity of *C. pseudotuberculosis*.

C. pseudotuberculosis has a surface antigen that reacts with the homologous antibody to cause agglutination of bacterial cells. The antigen is also present in protoplasm but in smaller amounts. Cameron, (1972) found that the antigen is part of the cell wall matrix and that chemical alteration of the cell wall simultaneously destroyed the antigen. Shigidi, (1974) extracted a soluble antigen from bacterial cells using sodium desoxycholate that could be used for gel immunodiffusion tests. Two precipitin lines were observed when the antigen was reacted with antibacterial serum. Different strains of each biotype of *C. pseudotuberculosis* are antigenically identical with respect to their cell wall antigens (Shigidi, 1974; Awad *et al.*, 1977) but antigens from the two biotypes are different (Barakat *et al.*, 1984). The cell wall antigen cross-reacts slightly with that of *C. renale* but not with those of other *Corynebacteria* (Shigidi, 1974; Shen *et al.*, 1982).

The chemical component of the cell wall antigen is a non-protein and non-lipid as it is not affected by proteolytic enzymes (Cameron *et al.*, 1969; Cameron and Purdom 1971; Shen *et al.*, 1982), treatment with trichloroacetic acid (Cameron and Purdom, 1971) or extraction with ether/ethanol (Cameron and Fuls, 1973). The molecular structure and the molecular weight of the antigen has however not been determined.

The surface lipid of *C. pseudotuberculosis* is not antigenic (Maki *et al.*, 1985) and its removal by ether/ethanol does not alter the immunising ability of bacterial cells (Cameron *et al.*, 1972).

The exotoxin of *C. pseudotuberculosis* consists of several antigenic components. It reacts with the homologous antiserum to produce several precipitin bands in agar gel (Goel and Singh, 1972; Kuria, 1984). These findings correlate with the chromatographic elution profile of the exotoxin which consists of several peaks that show activity (Goel and Singh,

1972; Onon, 1979; Kuria, 1984). The exotoxin is therefore thought to be an aggregate of more than one protein.

Exotoxin from different strains of both biotypes of *C.pseudotuberculosis* are antigenically identical (Doty *et al.*, 1964; Lovell and Zaki, 1966; Awad *et al.*, 1977; Brown *et al.*, 1985) and do not cross-react with toxins of other *Corynebacteria* (Lovell and Zaki, 1966; Soucek and Souckova 1974). *C. pseudotuberculosis* has also been found to produce an allergenic substance that provokes delayed skin hypersensitivity in infected animals (Langenegger *et al.*, 1987). The delayed hypersensitivity was specific in that it was not observed in healthy animals. There is no information as to whether the allergen is related to allergens of other intracellular bacterial parasites.

2.2. The disease in goats.

2.2.1. Epizootiology.

Caseous lymphadenitis is a disease mainly of adult animals. The disease is rare but can occur in kids. Ashfaq and Campbell, (1979) examined several herds and found only a few kids of 0-3 months infected. In adult animals, a direct correlation between age and prevalence was found. Animals of 3-4 years had the highest prevalence. Shen *et al.*, (1982) also observed a positive correlation between age and seropositivity in ELISA immunoassays. Holstad (1986c), however found no difference between different ages of adult animals (over 1 year) in the prevalence of superficial swellings in 15 herds. The prevalence was found to increase up to one year of age and was constant from then onwards. Lund *et al.*, (1982a) examined a naturally infected herd and found that animals were seropositive at the age of ten months. Holstad (1986a), followed the course of infection in 15 herds and found antibody titres to increase from one to six years of age. The increase was attributed to long-standing

antigenic stimulation.

Both males and females are equally affected (Ashfaq and Campbell, 1979) although a higher prevalence was observed in intact males than in castrates. It was suggested that the change in social behaviour was responsible for the difference in the sense that castrates are less aggressive and therefore less prone to injuries through which infection occurs. There is no information concerning the effect of breed on the prevalence of CLA in goats. In sheep, Nagy (1971) observed an apparently higher prevalence in merino sheep than in other breeds, with no apparent attributing factors.

2.2.2. The Sources of Infection.

Pus from discharging ruptured lymphnode or superficial abscesses contaminates fomites and the environment which then become the source of infection for other animals. *C. pseudotuberculosis* can survive in soil and on fomites for periods of up to one week and this ensures its continuing presence in the environment (Augustine and Renshaw 1982a; 1982b). The organism can also survive for periods ranging from three days to one week in water and on straw (Abdel-Hamid and Zaki, 1972). Nairn and Robertson (1974) demonstrated that contaminated dipping fluids can act as a source of infection for recently shorn sheep. Another potential source of infection is goat hair contaminated by direct contact (Ashfaq and Campbell, 1979; Brown and Olander, 1987). Holstad (1986b), observed that in 15 infected herds, the prevalence was lowest in a herd in which animals were individually kept in separate stalls. The purulent material has been estimated to contain 10^6 to 5×10^7 viable organisms per gram and so a single ruptured abscess can extensively contaminate the environment (Augustine *et al.*, 1982). Introduction of an abscessed animal is the most common source of infection for a disease free herd (Ashfaq and Campbell, 1979; Williamson and

Nairn, 1980; Holstad, 1986b). The disease, once established, becomes enzootic.

2.2.3. Route of Infection.

Most investigations into the routes of infection have focussed on sheep. In this species, contamination of superficial shearing wounds is believed to be the main route of infection (Nagy 1976; Nairn *et al.*, 1977; Brogden *et al.*, 1984). Transmission occurs when shears contaminated with pus deposits organisms on newly shorn, abraded skin (Nairn *et al.*, 1977). The disease can be reproduced experimentally by application of purulent material to fresh shearing wounds (Nagy, 1976) or by placement of culture on unbroken shorn skin especially when wet (Nairn and Robertson, 1974; Shigidi, 1979). Application of contaminated dipping fluids to skin within 2 weeks of shearing resulted in lesions in 3 out of 12 sheep (Nairn and Robertson, 1974). Nagy (1971), explored the possibility of arthropod vector (tick) transmission. However, here was no positive relationship found between tick infestation and prevalence of abscesses in sheep. Culturing mouth parts and saliva of ticks from 70 abscessed animals yielded *C. pseudotuberculosis* from only two ticks. Recovery of the organism from semen from rams with epididymitis have led to suggestions of possible venereal transmission (Mostafa *et al.*, 1973).

In goats, and in sheep that are not shorn, superficial skin wounds inflicted by thorns, barbed wire and other sharp objects or by fighting are thought to be the main portals of entry (Addo, and Eid 1978; Hein and Cargill 1981). Rubbing of the body against fence posts which could be contaminated with purulent material may be important in transmission (Burrell 1981). Ashfaq and Campbell (1979), considered that infection can occur through traumatised buccal mucosae due to rough feeds. This was borne out of observations that the most commonly affected lymphnodes in goats in western U.S.A. were those of the head region.

In sheep and goats with visceral form of CLA, a high prevalence of pulmonary and thoracic lesions has been observed. This has been taken to indicate possible respiratory transmission (Brown *et al.*, 1987). However, pulmonary abscesses can be produced experimentally not only through intratracheal but also through intravenous and intradermal inoculation (Cameron, 1972; Nagy, 1976; Brogden *et al.*, 1984; Brown *et al.*, 1985). It appears therefore that pulmonary infection is a result of either haematogenous or lymphogenous rather than aerogenous spread (Nairn and Robertson, 1974). Early pulmonary lesions were found to commence in the interstitial tissue without involvement of alveoli or bronchioles. The liver is thought to be affected via portal circulation and the infection can then affect the lungs (Benham *et al.*, 1962).

Experimentally, there are reports of caseous lymphadenitis induction by inoculation through scarified skin (Abdel-Hamid 1973), intradermal inoculation (Ashfaq and Campbell 1980), subcutaneous inoculation (Ashfaq and Campbell, 1980; Holstad and Teige, 1986b; Pepin *et al.*, 1988), intravenous, intralymphatic, intravaginal and oral routes (Cameron, 1972; Nagy, 1976; Burrell, 1978a; Brogden *et al.*, 1984; Holstad and Teige, 1988a). Intravenous inoculation usually leads to acute death, hence this route is unsuitable for experimental induction of CLA.

2.2.4. The dose of infection.

There is a wide variation in the reported dosage of *C. pseudotuberculosis* that will cause abscessation of regional lymphnodes with or without abscessation of internal organs. The dose varies depending on the route of inoculation and possibly the pathogenicity of *C. pseudotuberculosis* strains. Abdel-Hamid, (1973) inoculated 2 mls of a 48 hour broth culture into sheep subcutaneously and observed acute toxæmia. Doses of 0.25 mls and 0.01 mls

inoculated subcutaneously or by skin scarification with the same culture produced abscessation at inoculation site as well as the regional lymphnodes. Gameel and Tartour (1974), reported abscessation of regional as well as body lymphnodes in sheep inoculated subcutaneously with 1.9×10^5 organisms. A dose of 3.8×10^5 organisms produced acute death characterised by haemoglobinuria and icterus. Ashfaq and Campbell (1980), reported that a dose of 1×10^6 organisms delivered either subcutaneously, intradermally or submucosally in the mouth was suitable for experimental reproduction of CLA in goats. Holstad and Teige (1988b), used the same dose and achieved abscessation of regional lymphnodes in some animals and Maki *et al.*, (1985), reported a minimum dose of 1×10^4 organisms for infection in goats.

Pepin *et al.*, (1988), tried various doses inoculated subcutaneously in the outer ear of sheep and reported that at least 1×10^8 organisms were necessary to produce regional lymphnode abscesses. Some animals also became abscessed in the lungs. Depending on the dose of infection, intravenous inoculation leads to either no lesions, abscessation of visceral organs with or without involvement of visceral lymphnodes, or acute death (Cameron, 1972; Brown and Olander, 1987; Holstad and Teige, 1988a). Cameron, (1972), found difficulty in controlling the dosage that would give the desired lesions.

2.2.5. Pathogenesis.

From the primary site of infection, *C. pseudotuberculosis* disseminates as both free or phagocyte-borne bacteria and localise in lymphnodes and occasionally in a variety of internal organs (Jolly, 1965b; Hard, 1969b; Hard, 1972; Batey, 1974; 1986a; 1986b). Experimental evidence has shown that dissemination to visceral organs, especially lungs, occur concurrently with lymphnode infection (Nairn and Robertson, 1974).

Dissemination from the primary site is aided by the organism's phospholipase D (exotoxin). The enzyme damages endothelial cell membranes, resulting in leakage of plasma from small blood vessels and capillaries and thereby increasing lymph flow (Carne and Onon, 1978). This facilitates spread of organism via lymphatics and haematogenous route. The activity of exotoxin has been demonstrated by the ability of antitoxin to inhibit exotoxin-induced vascular permeability in the skin of sheep, to reduce transfer of organisms to the local lymphnode and to decrease protein effusion following intraperitoneal challenge in mice (Jolly, 1965a). Zaki, (1976), found that the antitoxin localized infection to the primary site in mice infected intraperitoneally, while control mice developed abscesses throughout the body.

Bacteria disseminating through the haematogenous route are trapped and phagocytosed in lungs, liver or spleen while those disseminating via lymphatics are trapped in local and regional lymphnodes (Jolly, 1965b; , 1969). The eventual formation of lesions at primary or secondary sites is due to intracellular multiplication of bacteria which leads to rapid death of host cells (Jolly 1965b; 1965c; Hard, 1969b). The freed bacteria are subsequently engulfed by remaining or infiltrating phagocytes which again go through the process of degeneration and death. In an infected macrophage monolayer, Jolly, (1965c) found that macrophages underwent degeneration when the number of intracellular organisms reached 30 or 40. The freed bacteria were then engulfed by secondary cells and multiplication led to rapid formation of a plaque of dead and dying macrophages. In sheep, the cycle of phagocytosis, multiplication of organisms and cellular degeneration is the basis of the concentric rings arrangement of the pus in lymphnode lesions (Runnels *et al.*, 1967; Burrell, 1978a). The size of lesions formed varies but probably depend, on the initial number of organisms, the rate of multiplication and accessibility of lesion to host cells (Batey, 1986b). Although no direct

action of exotoxin on host phagocytes has been demonstrated, possible cytotoxicity to internal cellular membranes has been suggested (Burrell, 1978a).

Development of lesions does not always occur subsequent to infection. Burrell, (1978a) introduced *C. pseudotuberculosis* into afferent lymphatics of popliteal lymphnodes of sheep and found that typical lesions of CLA did not always follow but oedema was invariably present. In mice, Jolly, (1965b) found that resolution of hepatic microabscesses was common and that organisms could be recovered from spleen without presence of lesions. In affected sheep flocks, antibodies to exotoxin are not necessarily present or confined to sheep with lesions (Zaki and Abdel-Hamid, 1971; Nairn *et al.*, 1977; Shigidi, 1978; Burrell, 1980b). This suggests that resolution of lesions in some animals does occur in the early stages of development (Batey, 1986b).

2.2.6. The Clinical Disease.

Caseous lymphadenitis in both goats and sheep is characterised by one or more swellings involving the superficial lymphnodes. The swellings are either visually apparent or are detectable by palpation. The abscesses may burst, discharge and heal completely leaving a scar or no sign of infection (Addo and Eid, 1978). In Western United States, Ashfaq and Campbell (1979), reported that in goats, the most commonly affected lymphnodes are those of the head region as opposed to those of other parts of the body. The mandibular nodes had the highest incidence followed by the parotid. In Nigeria, Addo and Eid (1978), observed in goats and sheep a higher incidence in prescapular and precrucial lymphnodes. The site of lesion is dependent on the site of infection. Nagy (1976), infected animals subcutaneously on different sites of the body and observed a definite relationship between infection site and the affected lymphnodes. Lymphnodes nearest to the site of infection were

affected first (Gameel and Tartour, 1974).

The disease occasionally becomes generalised with abscessation of internal lymphnodes and organs (Renshaw *et al.*, 1979, East, 1982). This form of the disease is less common but more severe. The clinical picture is indistinguishable from other chronic debilitating disease conditions in both goats and sheep. It has an insidious onset of wasting with occasional deaths (Gilmour, 1990). However, lesions of the retropharyngeal lymphnodes, bronchi or lungs will cause respiratory symptoms, choking and death (Addo and Eid, 1978; Holstad, 1986b). Chronically infected sheep have been found to die after a debilitating disease characterised by anaemia (Gameel and Tartour, 1974). Renshaw *et al.*, (1979) observed a thinning syndrome in ewes due to chronic visceral CLA and Mostafa *et al.*, (1973), observed reproductive failure due to abscessation of lymphnodes draining the genitalia in ewes. Testicular infection has been incriminated in infertility in a ram (Turner, 1980).

Blood parameters in infected animals have been examined. In both naturally and experimentally infected animals, there is usually a leucocytosis and also anaemia (Addo and Eid, 1978; Mottelib *et al.*, 1979; Holstad and Teige, 1988b). The anaemia is characterised by a drop in haemoglobin and haematocrit levels, and this is thought to be due to toxic effects of exotoxin on erythrocytes (Cameron *et al.*, 1972).

2.2.7. Pathology.

At post mortem, apart from superficial and internal lymphnodes, other organs that may be found affected are the liver, lungs, kidney, spleen and subcutaneous tissue (Sharma and Dwivedi, 1976; East, 1982; Jubb *et al.*, 1985). In sheep, lesions have also been encountered in the brain (Bandopadhyay *et al.*, 1976), in the heart (Hamir, 1981), scrotum

(Williamson and Nairn, 1980), and epididymis and testicular tissue (Krishna *et al.*, 1977). Lesions in the lungs may be either discrete abscesses or a diffuse suppurative bronchopneumonia (Sharma and Dwivedi, 1976; Addo and Eid, 1978).

The abscess material is usually greenish-yellow to creamy in colour and pasty in consistency. The pasty nature of pus in goats is said to be distinct from the onion-like concentric rings of pus arrangement in sheep (Brown and Olander, 1987). This is thought to be due to a more liquefactive nature of goat phagocytic enzymes (Ashfaq and Campbell, 1980). Calcification of the lesions is reportedly rare in goats (Brown and Olander, 1987).

Microscopically, lesions are granulomatous and resemble tubercles. A caseous necrotic centre, with fragmented nuclear debris and degenerated and intact neutrophils is surrounded by a zone of macrophages, lymphocytes, epithelioid, plasma and giant cells. The lesion is encircled by a capsule of proliferating fibroblasts (Sharma and Dwivedi, 1976; Jubb *et al.*, 1985). Gram-positive diphtheroid organisms may be observed in the necrotic zone of the lesion.

2.3. Immune Response.

2.3.1. Tests for Humoral Response.

These have been adequately reviewed by Ayers, (1977); Kuria, (1984); and Brown and Olander, (1987). The tests can be grouped into those detecting antibody to cell surface and cell wall antigens and those detecting antibody to exotoxin. The earliest of the first category was the bacterial agglutination test (BAT). The test detects antibodies to surface antigen. Originally performed in tubes, (Cameron and McOmie, 1940; Awad, 1960) BAT is today performed in microtitre plates (Lund *et al.*, 1982a; Holstad, 1986a). The tendency of *C. pseudotuberculosis* to autoagglutinate presents a problem in antigen preparation.

However, some strains have less tendency to autoagglutinate (Jolly, 1966). Autoagglutination can also be inhibited by detergents such as Tween 80 (Keskinetepe, 1976b; Lund *et al.*, 1982a). The test has been reported to have a sensitivity and specificity of 96% in experimentally infected animals (Holstad, 1986a) but non-specific agglutination reactions have been reported (Burrell, 1978b).

An agar gel double immunodiffusion test is performed using a soluble antigen extractable from bacterial cells using sodium desoxycholate (Shigidi, 1974). The test shows some non-specific reactions which were attributed to possible cross-reactions (Shigidi, 1979). The antigen is known to cross react with an antigen of *Corynebacterium renale* (Shigidi, 1974). A cell wall antigen ELISA has been established. It utilises a trypsinised particulate cell wall antigen separated from sonicated cells using a density gradient (Shen *et al.*, 1982). The test does not cross-react with antigens of *Corynebacterium (Actinomyces) pyogenes*.

Tests for detection of antitoxin are either *in vivo* or *in vitro* tests. A skin neutralisation test, in which exotoxin is titrated with antiserum and then injected intradermally in rabbits has been attempted (Doty *et al.*, 1964). Absence of oedema and necrosis indicates presence of antibodies. The test is not applicable in large scale testing. Zaki (1968), utilised the ability of exotoxin to inhibit erythrocyte lysis by *Staphylococcal* β -lysin to develop the anti-haemolysin inhibition test (AHI). Test serum is incubated with standard dose of exotoxin and bovine erythrocytes after which *Staphylococcal* β -lysin is added. In the absence of antibodies, exotoxin occupies receptor sites on erythrocyte membrane and prevents β -lysin from occupying them and causing haemolysis. The test was reported to have a sensitivity and specificity of 92-96% in an abattoir survey of the disease in sheep and goats (Zaki, 1968).

The haemolysis inhibition test (HIT) or synergistic haemolysis inhibition test (SHI) is based on the synergistic action of exotoxins from *C. pseudotuberculosis* and *Rhodococcus*

equi to cause erythrocyte lysis (Fraser, 1964). Antibodies to exotoxin inhibits the synergistic haemolysis. The test was first applied in infected horses and was reported to have a sensitivity of 100% (Knight, 1978). Titres are said to remain positive, even in the subclinical stage of infection in goats, indicating that the test can detect infected carriers (Brown *et al.*, 1986b; 1987). The sensitivity of the test has been reported as 96% in experimental goats and as 98% and 96% respectively in sheep and goats with natural disease (Holstad, 1986a; Brown *et al.*, 1986b).

An antitoxin ELISA has also been developed (Maki *et al.*, 1985; Kuria and Holstad, 1989) and found superior to ELISA systems detecting antibodies to other antigens of *C. pseudotuberculosis*. An agar gel immunodiffusion test or an indirect haemagglutination test can also be used to detect serum antitoxin (Burrell, 1980a; 1980b).

Another *in vivo* test is the mouse protection test (Zaki and Abdel-Hamid, 1971). Test serum is titrated with standard amounts of exotoxin and then injected intraperitoneally in mice. Presence of antitoxin in serum is indicated by survival of mice.

2.3.2. Humoral Immune Response in CLA.

Bacterial agglutination antibodies are detectable by the second week of infection in experimental animals (Holstad and Teige, 1988b). Antibody titres increase during the first two weeks and then decrease subsequently for a period of two to three weeks. Cameron (1972), found bacterial agglutination titres to return to pre-immunization levels within four months. In the cell wall antigen ELISA, Shen *et al.*, (1982) observed a significant rise in titres in the first two weeks post inoculation. The rise peaked at 5 weeks and then declined slightly. Antibodies to exotoxin are detectable about one month post infection (Abdel-Hamid and Zaki, 1973; Brown *et al.*, 1985; Maki *et al.*, 1985; Holstad and Teige, 1988b).

Antibodies to cell wall antigens are therefore detectable earlier than antitoxin. Shigidi (1979), compared five tests, (three detecting antibodies to cell wall antigens and two detecting antitoxin), in experimentally infected sheep. A wide variation was observed between the tests in their onset and duration of sensitivity. The animals had been infected by placing the organism on intact shorn skin. This method of infection is largely ineffective in establishing caseous lesions. Antibodies to *C. pseudotuberculosis* are transferred to new borns through colostrum. Lund *et al.*, (1982b) found serum from kids suckled by infected nannies to have antitoxin titres detectable up to 5-6 weeks of age and not later than 2½ months. The significance of these observations was that seropositivity in kids after this period indicate exposure to *C. pseudotuberculosis* antigens. Kids are also protected, to an extent, from infection by maternal antibodies up to that period.

2.3.3. Tests for Cell-mediated Immune Response.

Work done on cell mediated immune response has focussed mainly on delayed skin hypersensitivity tests. *C. pseudotuberculosis* is a facultative intracellular parasite. A host's cell mediated immune response is therefore expected. Tuberculin has been found to elicit non-specific reactions in sheep and goats naturally and experimentally infected with *C. pseudotuberculosis*. The reactions are probably due to antigens shared with *Mycobacterium spp.* (Shukla *et al.*, 1971). Train (1935), and Cameron and McOmie (1940), attempted delayed skin hypersensitivity tests in horses and sheep respectively using *C. pseudotuberculosis* culture filtrate. The results were highly variable. Renshaw *et al.*, (1979) used sonicated organism as the test reagent. The sensitivity of the test was found to be low (56%). Brown *et al.*, (1986a) injected fragmented cells at regular intervals into experimentally infected goats. A hyposensitivity response was observed and was found to

have a direct relationship with the severity of the clinical disease. Langenegger *et al.*, (1987) produced an allergen from *C. pseudotuberculosis* cells. The allergen reportedly produced specific skin reactions in 40 infected goats and no reactions in 40 normal goats. There are few reports of invitro tests for cell mediated immune response. A lymphocyte transfer test has been attempted but the results were found highly variable and unreliable (Holstad *et al.*, 1989).

2.3.4. Cell Mediated Immune Response.

C. pseudotuberculosis is a facultative intracellular parasite and cell mediated immune response is expected to play an important part in immunity to CLA. Jolly, (1965b) observed that resolution of lesions in livers and spleens of convalescent mice was by specialised macrophages. Also, an emergence of activated macrophages has been observed following infection and on re-infection (Jolly, 1965b; 1965c; Hard, 1969b; 1970). Immunity can also be transferred through peritoneal cells from mice infected intraperitoneally to non-infected mice (Hard, 1969b). These findings indicate that cellular immunity play a major role in resistance to *C. Pseudotuberculosis* infection. Cellular immune response has also been demonstrated by Husband and Watson, (1977). Live *C. pseudotuberculosis* injected intralymphatically into afferent lymphatic ducts increased the number of lymphoblasts in efferent lymph four times higher and for four days longer than the killed organism.

Investigations have been done concerning possible depression of immune response by *C. pseudotuberculosis* through destruction of lymphoid tissue. Hedden *et al.*, (1986) characterised lectin-binding lymphocytes of goats with and without CLA. Results indicated that goats with CLA may have compromised cell mediated immunity.

3.0 MATERIALS AND METHODS.

3.1. Natural pseudotuberculosis in goats and sheep.

3.1.1. Animals.

Animals slaughtered in the Nairobi municipal slaughterhouses of Kitengela, Dandora, Halal and Dagoretti were used. These animals came from different parts of the country but mainly from the nomadic North Eastern, Eastern and Rift Valley provinces. The breeds of goats were mainly the Galla and the small East African goat while sheep breeds were the dopper, blackhead Persian, Red Maasai and crossbreeds. The animals were examined for pseudotuberculosis lesions at postmortem.

3.1.2. Postmortem Examination.

The lymphnodes of the head and body and those of the visceral organs were incised and examined for abscesses. The visceral organs were examined by palpation and incision. Any abscessed lymphnode or tissue was put into separate sterile plastic containers and transported to the laboratory.

3.1.3. Bacteriological analysis.

Caseous pus from abscessed lymphnode or other tissues was cultured on 8% ox blood agar and incubated at 37°C for a maximum of 48 hours. Bacterial colonies were then identified following the standard procedure i.e physical characteristics, cellular morphology, staining characteristics of cells and biochemical reactions (Collins and Cummings, 1986).

3.1.4. Histopathology.

Samples of abscessed tissues were fixed in 10% neutral buffered formalin, processed

routinely by paraffin block method, and then sectioned at 5 μm thickness. All sections were stained with haemotoxylin and eosin (H&E). Sections that showed signs of calcification were also stained with Von Kossa stain to demonstrate the presence of calcium compounds (Luna, 1968).

3.1.5. Serology.

Blood or blood clots were obtained from heart chambers of affected and non-affected carcasses, put into sterile universal bottles transported to the laboratory, and processed for serum. The serum samples were preserved with sodium azide (0.01%) and stored at -20°C until used for serological tests, namely the haemolysis inhibition test (HIT) and the bacterial agglutination test (BAT).

3.1.5.1. The haemolysis inhibition test (HIT).

The reagents required for this test were *C. pseudotuberculosis* exotoxin, cell-free culture filtrate of *Rhodococcus equi*, sheep red blood cells (srbc) and diluent.

(a) Preparation of *Rhodococcus equi* filtrate.

Rhodococcus equi (*Rh. equi*) filtrate was prepared from strain NVH 3370, (Norwegian College of Vet. Medicine Culture Collection). The organism was cultured in 3.7% Brain-heart infusion broth (Oxoid) and incubated at 37°C with continuous shaking for 5 days (Lund, 1982a). The culture was centrifuged at $14 \times 10^4 \times \text{g}$ for 30 minutes at 4°C . The supernatant was filtered through 0.22 μm size millipore filters (Millipore corporation), preserved with merthiolate (final concentration 0.01%00), and stored at 4°C .

(b) Preparation of *C. pseudotuberculosis* exotoxin.

C. Pseudotuberculosis exotoxin was prepared from a local strain HL13, previously isolated from a caseous abscess in a goat. The organism was cultured in 500 mls volumes of 3.7% Brain-heart infusion (oxid) broth incubated statically at 30°C for 7 days. Cultures were then centrifuged at $14 \times 10^4 \times g$ for 30 min. at 4°C. The supernatant was filtered through 0.22 μm size millipore filters, preserved with sodium azide (final concentration 0.01%) and stored at 4°C.

(c) Preparation of sheep red blood cells.

Blood was collected from the jugular vein of a sheep, mixed with an equal volume of Alserver's citrate and left to stand overnight at 4°C. The buffy coat was removed and the red cells washed three times with Phosphate Bufferd saline (0.15M PBS, pH 7.2) The cells were stored in Alserver's citrate at 4°C and used within one week.

(d) Titration of *C. pseudotuberculosis* exotoxin and *Rhodococcus equi* filtrate.

Exotoxin activity was measured in minimum haemolytic doses (MHD). One MHD of exotoxin was the concentration in 50 μl required to haemolyse 50 μl of 1% sheep red blood cells (srbc) by a mixture of the exotoxin and cell-free culture filtrate of *Rh. equi* (Knight, 1978). This was determined by a checkerboard titration. Briefly, serial two-fold dilutions of exotoxin in PBS were made in wells of a V-shaped polystyrene microtitre plate (Limbro), from left to right in 50 μl amounts. Serial two- fold dilutions of *Rh. equi*, in 50 μl amounts, prepared in a separate plate, were added into the wells , from top to bottom. Fifty microlitres (50 μl) of srbc (1% V/V) in PBS were then added into each well. The plate was then sealed, shaken, and incubated at 37°C for 24 hours. The highest dilution of

exotoxin that produced complete haemolysis of the srbc in the presence of the highest dilution of *Rh. equi* filtrate was taken to contain one MHD. The corresponding dilution of *Rh. equi* filtrate was taken to be the minimum concentration for the synergistic haemolysis.

(d) The serological test procedure.

The test was carried out as described by Lund *et al.*, (1982a). Two-fold serial dilutions of test serum in PBS were prepared in wells of V-shaped microtitre plates. Fifty microlitres (50 μ l) of 2 MHD concentration of exotoxin was added into each well. The plates were incubated at 37°C for 2 hours. Fifty microlitres of a mixture of the optimum *Rh. equi* filtrate and sheep Rbc (1%) in PBS was added into each well. The plates were sealed, shaken, and incubated at 37°C for 24 hrs. Titres were read as the reciprocal \log_{10} of the highest dilution of serum that inhibited haemolysis. Titres equal and above 0.6 were considered positive (Lund *et al.*, 1982a).

3.1.5.2. Bacterial agglutination test (BAT).

The reagents required for this test are:- test serum; whole bacterial cell suspension antigen and diluent.

(a) Preparation of antigen.

The antigen was prepared following the method of Lund, (1982a). A non-autoagglutinating local strain of *C.pseudotuberculosis* (HL10) was used. The strain had been isolated from a caseous abscess in a lymphnode from a goat and preserved by lyophilisation. The organism was cultured in 100 ml volumes of 3.7% Brain-Heart infusion broth containing 1% Tween 80 and incubated at 37°C with continuous shaking. Bacterial cells were washed

three times with PBS containing 1% Tween 80 (PBS- Tween) and then suspended in the same buffer to a concentration of optical density (O.D) 0.65 ± 0.05 at 540 nm wavelength. This constituted the agglutinating antigen.

(b) The serological test.

Two-fold serial dilutions of test serum in PBS were prepared in wells of U-bottomed polystyrene microtitre plates (Limbro). Fifty microlitres of the agglutinating antigen was added into each well. Plates were sealed, shaken and incubated at 37°C overnight. Titres were read as the reciprocal \log_{10} of the highest serum dilution that agglutinated the antigen. Titres equal and above 2.1 were taken as positive (Holstad, 1986a).

3.1.6. Statistical analysis.

The sensitivity and specificity of serological tests were calculated by means of a Chi-square (Steel and Torrie, 1980) as follows:-

Presence of Lesions.

		+	-
Serological	+ve	a	b
Reaction.	-ve	c	d

$$\text{Sensitivity} = \frac{a}{a+c} \times 100$$

$$\text{Specificity} = \frac{d}{b+d} \times 100$$

The distribution of titre values among infected and none- infected animals was analysed by analysis of variance (Steel and Torrie, 1980).

3.2. Experimental induction of lymphadenitis.

This was carried out through investigation on different routes of infection, the dose required to set up an infection, the incubation period for the formation of lesions, and the ability of *C. pseudotuberculosis* surface lipid, the exotoxin and whole cell preparations to produce caseous lesions.

3.2.1. Routes of infection.

3.2.1.1. Experimental animals.

Experimental goats were of the Small East African breed, obtained from Kisamis area of Kajiado District. Castrated males of approximately 6 months of age and approximately of equal weight were selected and held in one *boma*. They were screened for pseudotuberculosis by physical examination (palpation) of superficial lymphnodes and by serological examination using the BAT and HIT. Fourteen of those found negative were purchased and used for the experiment.

The animals were given prophylactic treatment with 2 mls long acting tetracycline each intramuscularly, dewormed with 1.5 mls of albendazole, 10% (Valbazene^(R), Kenya Swiss Co. Ltd.) and also sprayed for ectoparasites with acaricide (Amitraz^(R) 12.5% W/V, Cooper (Kenya) Ltd. Acaricide and deworming treatments were repeated after 1 week and 2 weeks respectively.

The animals were housed in concrete-floored, stone-walled stalls with straw bedding. They were fed on hay and a wheat bran/dairy meal mixture. Animals were allowed 2 weeks

to acclimatise. They were again screened for pseudotuberculosis before commencement of experiment.

3.2.1.2. Preparation of infectious caseous abscess material.

Caseous abscess material was produced by injecting subcutaneously into a rabbit 0.1 ml of 19 hour brain-heart infusion culture of *C. pseudotuberculosis* strain HL13, emulsified in incomplete Freund's adjuvant. The purpose of using incomplete Freund's adjuvant was to contain the organism at the injection site. Two weeks later, the fur around the ripe abscess was shaved, the area cleaned with soap and water and disinfected with 70% alcohol. The abscess was then lanced and the caseous abscess material squeezed into sterile universal bottles.

3.2.1.3. Determination of bacterial concentration in abscess material.

The bacterial concentration in the abscess material was determined by the plate count method using the surface drop technic (Miles, 1938, Baker and Breach, 1980). A 10% (W/V) suspension of the material in Ringer's solution was prepared, thoroughly mixed on a whirlpool mixer and centrifuged at a low speed to remove fibrous material. Two-fold serial dilutions of the supernatant were prepared in the same diluent and 100 μ l volumes of dilutions 10^{-3} , 10^{-4} , 10^{-5} and 10^{-6} plated on ox blood agar. After 48 hours incubation at 37°C, colonies were enumerated. The viable bacterial concentration, expressed in colony forming units (cfu), of the abscess material was calculated from the mean count from four platings of each dilution.

3.2.1.4. Infection procedure.

On each of the 14 experimental goats, an area approximately 2.5 sq cm and approximately 5 cm behind the right precrural (subiliac) and the prescapular lymphnodes was shaven clean and disinfected with 70% alcohol. The animals were then divided into 5 groups of 3, 3, 3, 3, (Groups 1-4 and 2, (group 5) respectively and infected on both sites as follows:-

- Group 1.** Animals were injected subcutaneously with 100 μ l of diluted pus containing 1×10^6 cfu of *C.pseudotuberculosis*.
- Group 2.** Animals were injected intradermally with 100 μ l of diluted pus containing 1×10^6 cfu of *C. pseudotuberculosis*.
- Group 3.** The prepared sites were superficially scarified with sterile scapel blades and approximately 40 mg of undiluted pus smeared onto the sites using sterile spatulas.
- Group 4.** Undiluted pus, 40 mg, was smeared on the intact skin.
- Group 5.** This served as the uninfected control group.

In groups 1-4, the right prescapular and precrural lymphnodes were the test nodes while the contralateral lymphnodes served as controls in each animal. The infection procedure is summarised in table 1.

Table 1.

Infection procedure of goats with *C.pseudotuberculosis* caseous abscess material through different routes.

Group.	Goat No.	Route of Infection.	Dose.
I.	1, 2, 12	subcutaneous	1 x 10 ⁶ cfu.
II.	5, 6, 7	intra-dermal	1 x 10 ⁶ cfu.
III.	8, 10, 11	scarified skin	caseous pus
IV.	9, 13, 14	intact skin	caseous pus
V.	3, 4	None	None

3.2.1.5. Clinical, haematological, serological and postmortem examination of the animals

Rectal temperatures were taken daily for one week. The animals were examined daily for swelling at infection sites, and draining lymphnodes and discharges from infection sites. Blood was collected weekly for haematology and for serum extraction. For haematology, the total white blood cell (WBC) count ($10^3/\text{mm}^3$) was determined using a coulter counter

model ZM equipment (Coulter Electronics, England); haemoglobin (g/100 mls) with a haemoglobinometer (Coultronics, France); the total protein concentration (g/100 mls) with a refractometer (Atago, Japan), and the packed cell volume (PCV) was determined using the capillary tube method and the Hawksley microhaematocrit reader. The differential leucocyte counts were calculated from Giemsa - stained smears. Serology was performed, using the BAT and HIT tests on all the sera collected as in section 3.1.5. All animals were sacrificed (slaughtered) at 10 weeks post infection and postmortem performed. The superficial and internal lymph nodes and visceral organs were examined for caseous abscesses. Bacteriological analysis was performed on all abscesses found. The right and left prescapular and precrural lymph nodes were excised, stripped of all extracapsular tissues, weighed and then fixed in 10% buffered formalin. They were then processed routinely for histological examination as described in 3.1.4.

3.2.6. Statistical analysis.

Changes in haematological values within and between groups were analysed by analysis of variance and by a Scheffe's test for separation of means. Lymph node weight differences were analysed by a T-test and serological results by analysis of variance (Steel and Torrie, 1980).

3.3. Determination of the minimum dose of infection.

3.3.1. Infection procedure.

The minimum dose of *C. pseudotuberculosis* required to establish caseous lesions in draining lymph nodes was determined by infecting animals intradermally with graded doses of the organism.

Sixteen (16) goats weighing 12-18 kg were used. They had been tested and selected as in 3.2.1. They were divided into 8 groups of 2 animals each. Medication housing and feeding was carried out as described in 3.2.1.1.

The right prescapular and precrural sites were prepared as described in section 3.2.1.4. The draining lymphnodes were the test lymphnodes and the contralateral lymphnodes the controls in the experiment. Infections was then carried out intradermally with 100 μ l of caseous abscess material diluted in Ringer's solution to the required bacterial concentration as tabulated in Table 2.

Table 2.

Determination of the dose of infection for CLA in goats using caseous abscess material containing different doses of *C. pseudotuberculosis* administered intradermally.

Group	Goat No.	Dose of Infection (cfu)
1	15, 16	1×10^5
2	17, 22	5.0×10^4
3	18, 19	1×10^4
4	27, 21	5.0×10^3
5	29, 30	1×10^3
6	23, 24	5.0×10^2
7	31, 32	1×10^2
8	25, 26	5.0×10^1

3.3.2. Examination of animals.

Animals were observed and examined clinically daily for swelling of test and control lymphnodes and swelling and discharges at injection sites. Rectal temperatures were also taken daily. Blood for haematology and serology was collected weekly and analysed as in section 3.2.1.5.

3.3.3. Post mortem Examination.

All animals were sacrificed 10 weeks post infection and postmortem performed. The superficial and internal lymphnodes and visceral organs were examined for caseous abscesses. Test and control lymphnodes were weighed and then fixed in 10% buffered formalin. Thereafter they were re-examined for abscesses by thin-sectioning throughout the length of the nodes. Histopathology was latter performed as described in section 3.1.4.

3.3.4. Statistical analysis.

Haematological results were analysed by analysis of variance and a Scheffe's test for separation of means. Serological results were analysed by analysis of variance and lymphnode weights by a T-test (Steel and Torrie, 1980).

3.4. Determination of the incubation period for CLA.

The incubation period for the formation of caseous lymphadenitis lesions in draining lymphnodes was determined by intradermal infection followed by sequential sacrifice and examination of three groups of goats.

3.4.1. Infection procedure.

Three groups of 10 goats each, tested, selected, medicated, housed and fed as in section 3.2.1.1. were used for the experiment. The right prescapular and precrural sites were prepared as described in section 3.2.1.4. The contralateral lymphnodes were the controls in each animal. The infection procedure was carried out as follows:-

Group 1. Animals were infected intradermally with 100 μ l of diluted caseous pus containing 5.0×10^4 cfu of *C. pseudotuberculosis*.

Group 2. Animals were infected intradermally with caseous material containing 1×10^5 cfu of *C. pseudotuberculosis*.

Group 3. Undiluted caseous pus, 40 mg, was smeared on scarified sites using sterile spatulas.

3.4.2. Examination of animals.

The animals were examined physically for swelling of test lymphnodes and infection sites. Concurrently, animals from each group were sacrificed initially two-three days in groups one and two, and every two days in group three as follows:-

Days animals were sacrificed.

Group 1. 2, 5, 7, 9, 11, 14, 17, 20, 27, 30.

Group 2. 2, 3, 3*, 6, 8, 11, 17, 25, 34.

Group 3. 5, 7, 9, 11, 13, 15, 17, 19, 21, 23.

*The animal died of pneumonia.

Blood for serology was collected from each animal at day zero and at time of sacrifice. In addition, animals remaining in group two after each sacrifice were bled every three days. BAT and HIT tests were performed as in section 3.1.5.

At postmortem, the test and control lymphnodes were thin-sectioned and examined for abscesses. Internal lymphnodes and organs were similarly examined. Sections of test and control lymphnodes and skin injection sites were fixed in 10% buffered formalin and processed for histological examination as in section 3.1.4.

3.5. The pathogenicity of *C. pseudotuberculosis* fractions and whole cell preparations.

The ability of two fractions (the surface lipid wax and the exotoxin) and three whole-cell preparations (formalin or heat killed or ether/ethanol washed) of *C. pseudotuberculosis*, to produce caseous skin and lymphnode lesions in goats was investigated. This was carried out by intradermal injection of each test substance followed by clinical, postmortem and histopathological examination of the injection sites and draining lymphnodes.

3.5.1. Preparation of surface lipid wax.

C.pseudotuberculosis strain HL13 was grown on ox blood agar plates and incubated for 48 hours at 37°C. Colonies were then washed off with sterile PBS. The cells were washed three times with sterile distilled water, placed into 50 ml beakers and dried out for two days in an oven at 45°C. The cells were then weighed and wax extracted with diethyl ether following using the soxhlet method. The heating waterbath was maintained at 45°C.

3.5.2. Preparation of formalin - killed *C.pseudotuberculosis*.

Cells of *C. pseudotuberculosis* strain HL 13 grown on ox blood agar were washed three times with PBS and then suspended in PBS containing 12.5% of 40% formaldehyde solution (to make the final concentration of formaldehyde 5%). The cells were left to stand in the solution for two days. They were then washed with PBS containing 0.5% formaldehyde (final concentration) and then suspended in the same to a concentration of 5% cells (v/v)

3.5.3. Preparation of Heat-Killed *C.pseudotuberculosis*.

Washed *C.pseudotuberculosis* strain HL13 cells were suspended in PBS to a concentration of 5% cells (v/v) and then autoclaved at 121°C for 15 minutes.

3.5.4. Preparation of ether/ethanol extracted cells.

C. pseudotuberculosis cells were extracted three times for 2hrs. each with a 50:50 diethyl ether/ ethanol mixture. Cells were placed in 100 ml glass-stoppered flasks with glass beads added. Extraction was done on a mechanical shaker at room temperature. The cells

were then dried at 40°C and suspended in PBS to a concentration of 5% cells (v/v).

3.5.5. Purification of exotoxin.

C. pseudotuberculosis exotoxin was prepared as in section 3.1.5.1.(b). Three litres of the toxic brain-heart infusion broth with approximately 66 mg protein per ml (determined by the method of Lowry *et al.*,1982), was concentrated to 400 mls by ultrafiltration using a 30,000 daltons molecular weight retention filter(PM30, Diaflo ultrafilters, Amicon, Massachusetts, USA) at a filtration pressure of 70 psi.

The concentrate (300 mls) was precipitated with 700 mls of saturated ammonium sulphate solution (pH 8.0) to give a salt concentration of 70% in the mixture. The mixture was held at 4°C for two days and the supernatant decanted. The remainder of the solution was centrifuged at 14×10^4 xg. The precipitate was dissolved in 10mls of 0.2M Tris-HCl buffer, pH 8.0. Further purification was done by gel filtration.

Three (3) mls of the dissolved precipitate, containing 150 mg of protein per ml, were applied to a 1.5 cm diameter and one metre long column, packed with fine sephadex G50 (Pharmacia fine chemicals, Uppsala, Sweden) in Tris-Hcl buffer and eluted with the same buffer. The column was eluted at the rate of seven (7) mls per 10 min (about 40 mls per hr) and fractions of seven mls each were collected. The optical density (O.D) of each sample was read at 280 nm and at 410 nm. All samples were then tested for synergistic haemolytic activity on sheep red blood cells mixed with *Rh. equi* filtrate. Fractions that had the peak haemolytic activity were concentrated by ammonium sulphate precipitation, dialysed against a solution of 50% glycerol in Tris-Hcl buffer and stored at -20°C.

3.5.6. Pathogenicity testing procedure.

Groups of two to six goats were prepared for testing by shaving and disinfection of both the right and left precrural and prescapular regions as described in section 3.2.1.4. Injections were then carried out intradermally as follows:-

1. Animals, (six) were injected on the right side with 100 μ l of an emulsion containing *C. pseudotuberculosis* lipid wax (20 mg), activated charcoal (5 mg), emulsified in liquid paraffin (0.5 mls). The activated charcoal acted both as an adsorbant and a tracer while the liquid paraffin served as a diluent as well as carrier. The contralateral side was injected with an emulsion of activated charcoal in liquid paraffin.
2. Animals, (four) were injected with 100 μ l on the right side with a mixture of *C.pseudotuberculosis* exotoxin (100 μ l) of approximately 50 mg of protein per ml and 4096 MHD strength per 50 μ l and activated charcoal (5 mg) emulsified in incomplete Freund's adjuvant (0.5mls). The purpose of the activated charcoal was to adsorb the toxin and also act as tracer while that of the incomplete Freund's adjuvant was to bind and prevent diffusion the liquid toxin. On the left, 100 μ l of an emulsion of saline and activated charcoal in the adjuvant was injected.
3. Preparations as (2) above but with heat-inactivated toxin on the right side in four animals.
4. Formalin- killed *C.pseudotuberculosis* preparation (100 μ l) (see section 3.5.2.), on the right side only in two animals.

5. Heat- Killed *C.pseudotuberculosis* preparation (100 μ l) (see section 3.5.3.), on the right side only in three animals.
6. Ether/ ethanol extracted *C.pseudotuberculosis* cells preparation (see section 3.5.4.) (100 μ l), on the right side only in three animals.

3.5.7. Clinical, serological and postmortem examination.

The injection sites and the draining lymphnodes were examined daily. Animals from each group were sacrificed on different days (days 6, 9, 24, 30, 35 and 40 for group one; days 9, 24, 30 and 35 for groups two and three; days 24 and 30 for group four; days 12, 24 and 36 for group five; and days 18, 21 and 30 for group six) postmortem carried out. Blood for serology (BAT and HIT tests) was collected from each animal at day zero and at time of sacrifice. The test (right) and the contralateral lymphnodes were examined for lesions. The skin injection sites were also incised and examined. The lymphnodes were weighed and together with the skin injection sites, fixed in 10% neutral buffered formalin and processed for histopathological examination as described in section 3.1.4.

4.0. RESULTS.

4.1. Natural pseudotuberculosis in goats and sheep.

4.1.1. Gross pathology.

Seven hundred and fifty seven (757) goats were examined from the various slaughter houses. Of these, 54 carcasses (7.1%) had abscesses in one or more locations. A total of 56 abscesses were encountered. Of these, 50 were exclusively in peripheral lymphnodes (40 in prescapular, 6 in precrural, 3 in parotid and 1 in submaxillary), 2 involved precrural lymphnodes as well as the surrounding subcutaneous tissues, and 4 were in subcutaneous tissue, close to but with no involvement of peripheral lymphnodes (3 close to prescapular and one close to a precrural lymphnode) (Table 3).

Of the 398 sheep examined 6 carcasses (1.8%) had abscesses in one or more locations. In all, 7 abscesses were observed. Three of these were in prescapular lymphnodes, one was in a precrural lymphnode, 2 in subcutaneous tissue close to but with no involvement of a prescapular and a precrural lymphnode and one was in the lung parenchyma (Table 3). Other organs in both species were normal in appearance.

Lymphnode abscesses were greenish yellow or creamy in colour. The consistency was either caseous, granular or hard and calcified. One caseous lymphnode from a sheep had the pus arranged in onion - like concentric circles. Subcutaneous abscesses were greenish yellow and caseous. None was found to be calcified. Lymphnode abscesses occupied either

Table 3.

The distribution of caseous abscesses in sheep and goats with natural pseudotuberculosis observed during postmortem inspection in various slaughterhouses around Nairobi.

No. of Abscesses.

Location of Abscess.	Sheep.	%	Goats.	%
Prescapular Ln*.	3	42.85	40	75
Preaural Ln.	1	14.28	8	10.7
Parotid Ln.	0	0.0	3	5.35
Submaxillary Ln.	0	0.0	1	1.78
Lung.	1	14.28	0	0.0
Subcutaneous tissue.	2	28.57	4	7.14
Total	7	99.98	56	99.97

*Ln = Lymphnode.

the entire node, one pole, or occurred as multiple foci distributed within the lymphnode parenchyma.

4.1.2. Histopathology.

Lymphnode lesions of both goat and sheep consisted of a necrotic centre of pink-staining material containing nuclear debris, surrounded successively by a zone of macrophages and polymorphonuclear granulocytes (PMN), a zone of epithelioid and giant cells, macrophage together with lymphocytes and plasma cells and lastly a peripheral zone of fibroblasts or fibrous tissue (Fig.1). The number of giant cells varied from numerous to scanty. The capsular layer also varied from a loose layer of proliferating fibroblasts to a dense layer of fibrous tissue (Fig.2). Some lymphnodes had more than one lesion (Fig.3). In the rest of the lymphnode tissue, if any, the lymphoid follicles, were in reactive state and capsules were thickened by fibrosis. In what could be identified as early lesions, the centre of the lesions were composed of disintegrating macrophages and a few PMN, with very little or no the pink-staining necrotic material, surrounded by a zone of intact macrophages and PMN. This was followed by a zone of epithelioid cells and a wide zone of macrophages, lymphocytes and few plasma cells. The capsule was not distinct (Fig.4).

Evidence of resolving lesions was observed. Such lesions had no capsule and consisted of a granulation tissue composed of a few lymphocytes, macrophages, angioblasts, immature fibroblasts and sprouts of new capillary blood vessels (Fig.5).

In most lesions, evidence of calcification was apparent as light-blue staining material within the central necrotic area in the H&E stain, and black colouration in Von Kossa stained sections (Fig.6). One lesion from a sheep had the pus arranged in concentric circles but none of those from goats had such a morphology.

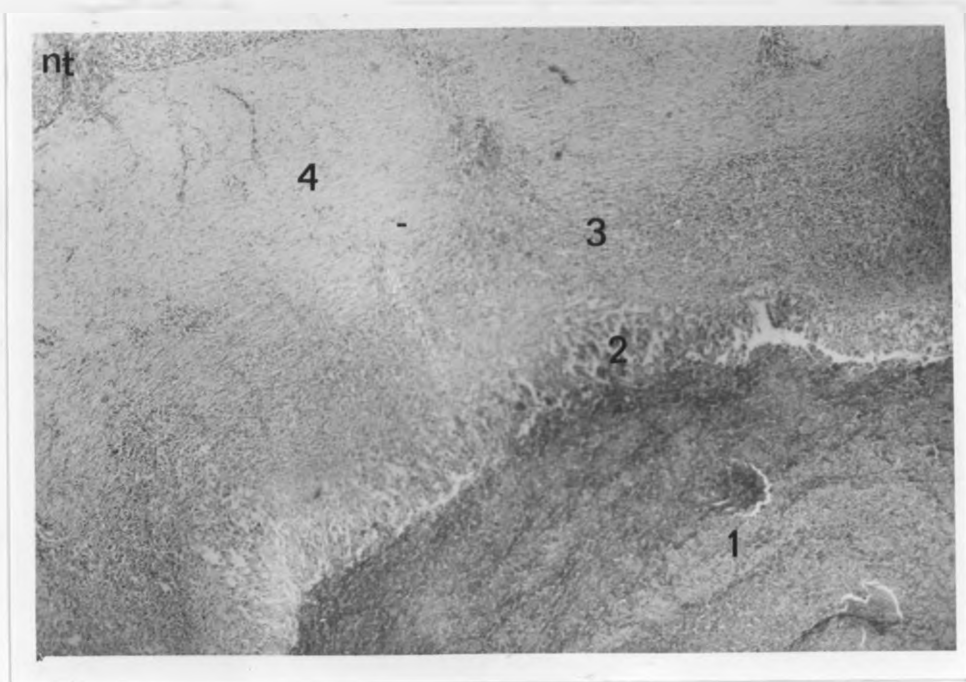


Fig.1

A natural caseous lymphadenitis lesion in a goat showing the necrotic centre (1) surrounded by a zone of epithelioid and giant cells (2), macrophages, lymphocytes and plasma cells (3) and a peripheral layer of fibrous capsule (4). Note normal tissue (nt) at the top left side. H & E x 100.

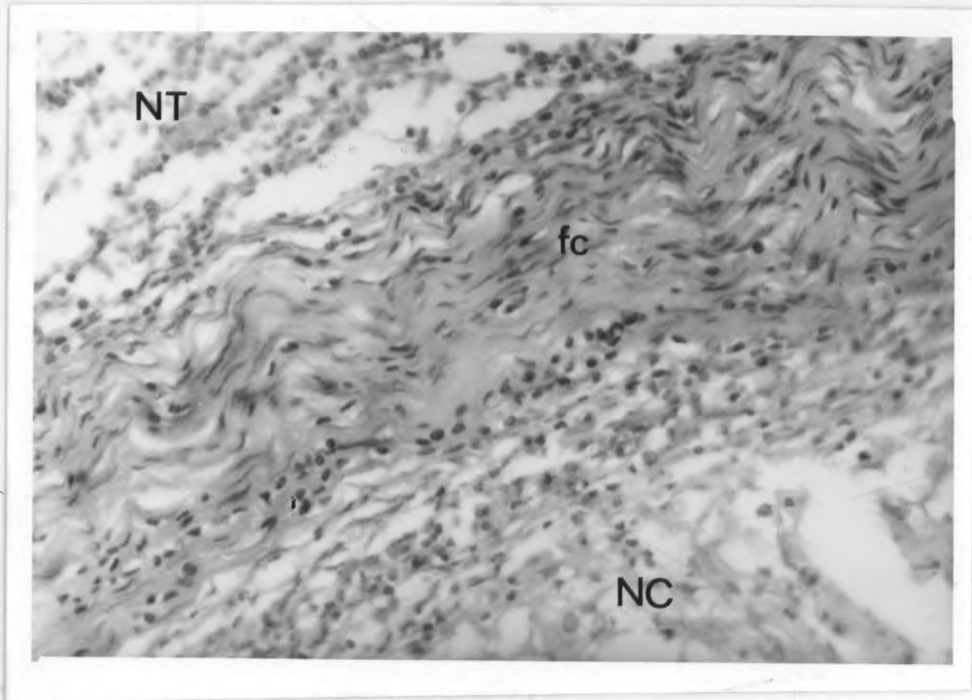


Fig.2

A dense fibrous tissue capsule (fc) in a natural caseous lymphadenitis lesion in a goat. Note the necrotic centre (NC), and normal tissue (NT). H & E x 400.

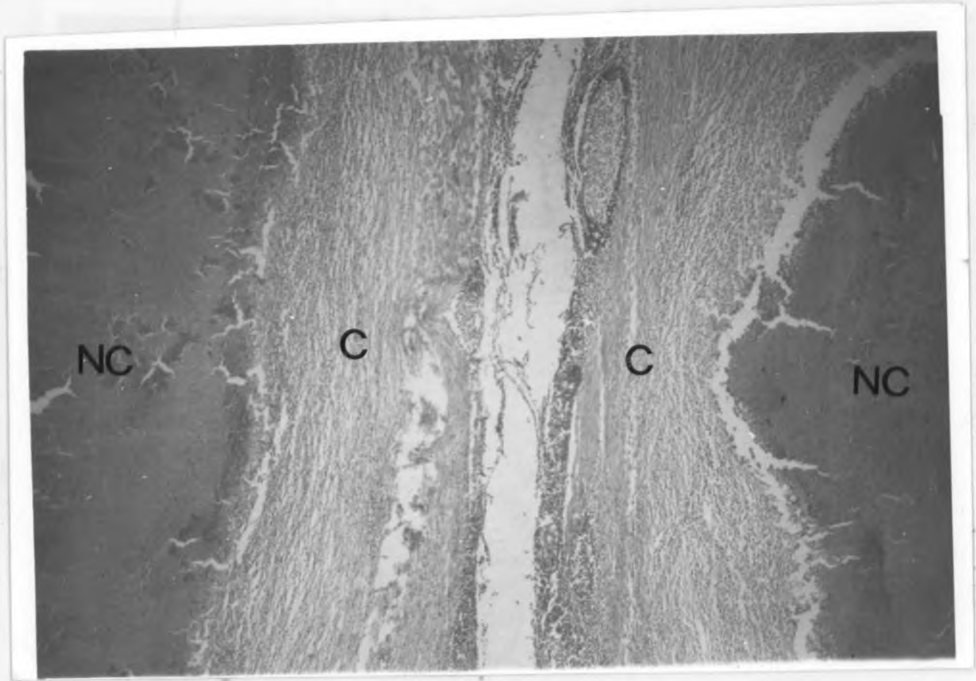


Fig.3

Two caseous lymphadenitis lesions (NC) in a lymphnode of a naturally infected goat.
The two lesions are separated by individual fibrous capsules (C). H & E x 100.

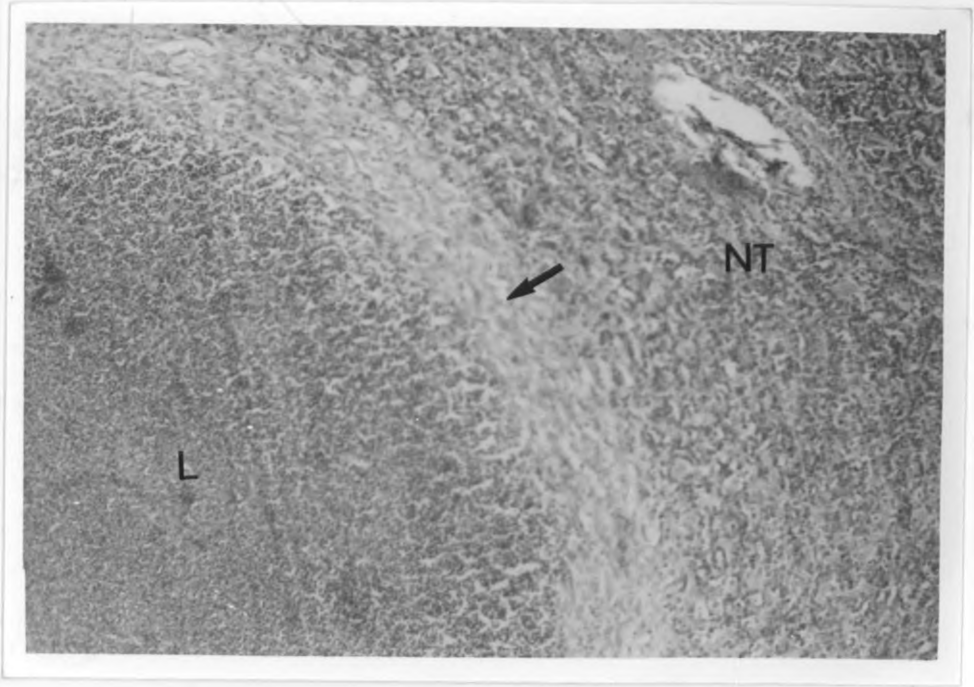


Fig.4

Early caseous lymphadenitis lesion (L) in a naturally infected goat showing the absence of a capsule. The whitish zone (arrowed) is composed of macrophages, epithelioid and giant cells. Note normal tissue (NT). H & E x 100.

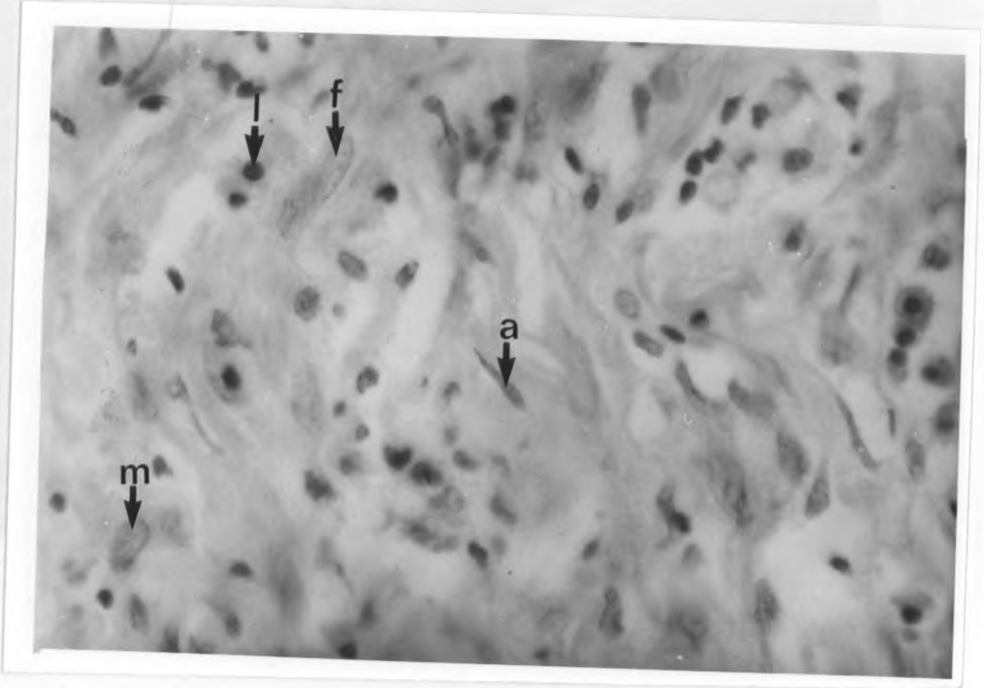


Fig.5

Resolution of a natural caseous lymphadenitis lesion in a goat by formation of granulation tissue composed of macrophages (m) lymphocytes (l) fibroblasts (f) and angioblasts (a). H & E x 630.

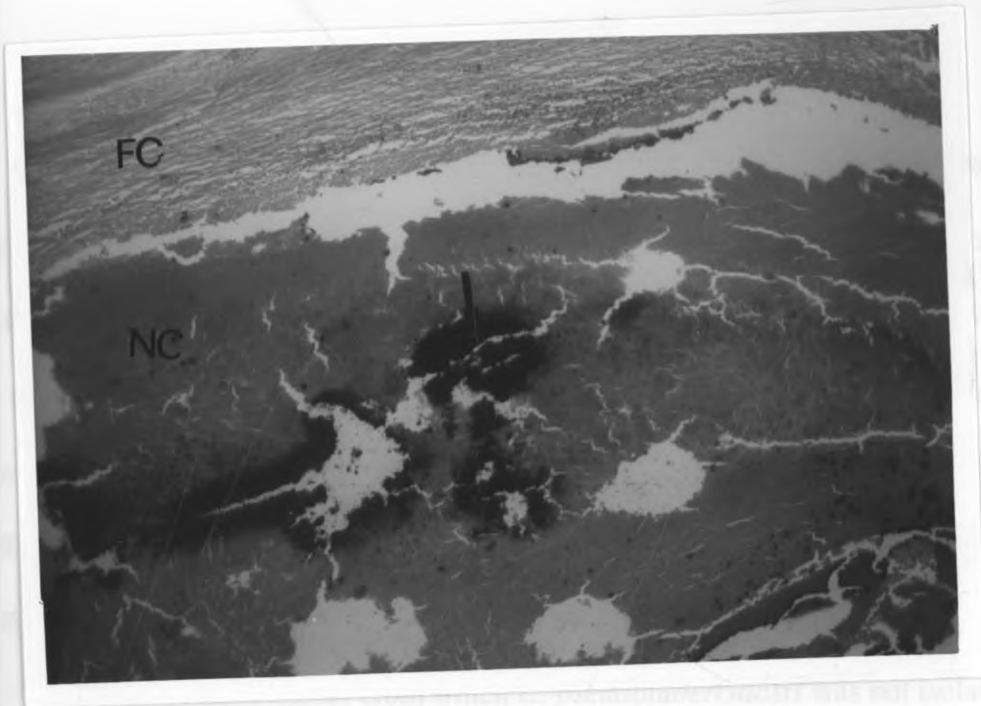


Fig.6

Calcification of a caseous lymphadenitis lesion in a naturally infected goat. The calcified areas are black (arrowed) within the necrotic centre (NC). Note fibrous capsule (FC). Von Kossa x 40.

Lesions adjacent to lymphnodes but with no involvement of the lymphnode had similar morphology to those in lymphnodes. The adjacent lymphnode had reacted by having a thickened capsule and reactive lymphoid follicles.

4.1.3. Bacterial culture.

Bacterial analysis was performed on all the 63 abscessed tissues collected from goats (56) and sheep (7) and the results are summarised in Table 4. *C. pseudotuberculosis* was the most frequently isolated organism, having been isolated from 50 of 63 (79.4%) abscesses. Out of the 50 cases, 36 were pure cultures of *C. pseudotuberculosis* while in 14 cases, *C. pseudotuberculosis* was isolated together with other microorganisms (*Bacillus spp* 7/17 (41%), *Streptococcus spp* 3/17 (18%), *Staphylococcus spp* (5%), *Pseudomonas spp* 3/17 (18%), and coliforms 18%).

Of the abscessed tissues from which *C. pseudotuberculosis* was not isolated (13) seven (11.1%) yielded other microorganisms either in pure or in mixed cultures (*Bacillus spp* 9 cases (14.1 %), *Streptococcus spp* 6 cases (9.5 %), *Staphylococcus spp* 4 cases (6.3 %), *Pseudomonas spp* 1 case (1.6 %) and coliforms 4 cases (9.5 %), while another 6 (9.52%), including the lung abscess from a sheep were found to be sterile (Table 4).

Table 4.

The type and frequency of isolation of microorganisms from sheep and goat caseous abscesses collected from natural pseudotuberculosis lesions.

Culture type.

Organism.	Pure.	Mixed.	Total.
<i>C. Pseudotuberculosis</i>	36	14	50
<i>Bacillus spp</i>	1	8	9
<i>Streptococcus spp</i>	2	4	6
<i>Staphylococcus spp</i>	3	1	4
Coliforms	0	4	4
<i>Pseudomonas spp</i>	0	1	1
None	-	-	6

4.1.4. Serological findings.

Two hundred seventy three serum samples were collected from 57 carcasses with and 216 carcasses without pseudotuberculosis lesions, respectively. BAT titres for samples from animals without lesions ranged from 0.9 to 3.0. The most frequent titre was 1.8 (46.75%). Titres for samples from animals with lesions ranged from 1.2 to 4.2 (Fig.7a). The most frequent titre was 2.1 (28%). Titres for samples from animals with lesions from which *C. Pseudotuberculosis* was isolated ranged from 1.5 to 4.2 (Fig.7a). The most frequent titre was 2.1 (24.4%). There was no significant difference in the percent distribution of the various titres between samples from animals with lesions and those from animals with lesions from which *C.Pseudotuberculosis* was isolated ($P=0.025 < 0.05$). Statistical difference in titre distribution between animals with lesions and those without was significant ($p=0.0001 < 0.05$).

HIT titres for samples from animals without lesions ranged from less than 0.3 to 1.8 (Fig.7b), the most frequent titre being less than 0.3 (91.20%). Titres for samples from animals with lesions ranged from less 0.3 to 2.7. The most frequent titre was 0.6 (20.7%). Samples from animals with lesions from which *C. pseudotuberculosis* was isolated had titres ranging from less than 0.3 to 2.7 and the most frequent titre was 0.9. (21.4%). There was no significant difference in the percent observation of the various titre values between samples from animals with lesions and those from animals with lesions from which *C. pseudotuberculosis* was isolated ($p= 0.025 < 0.05$). Titre distribution difference between animals with lesions and those without was statistically significant ($p=0.0001 < 0.05$).

Table 5 shows the postmortem, bacteriological and serological examination results from the 57 animals with and the 216 without lesions. Of those with lesions, 50 had positive BAT titres, 46 were positive for HIT and 51 were positive for either test. The sensitivities

were calculated as 87.7% for BAT, 80.7% for HIT and 89.47% for the combined tests. Considering only the animals from which *C. pseudotuberculosis* was isolated, the sensitivities were calculated as 93.3% for BAT, 88.88% for HIT and 95.5% for the combined,(either) tests.

Twenty-six of the 216 animals (12%), with no lesions were positive for BAT, 6 for HIT and 28 for either test. The specificities were calculated as 87.96 for BAT, 97.22% for HIT and 87.03 for the combined tests.

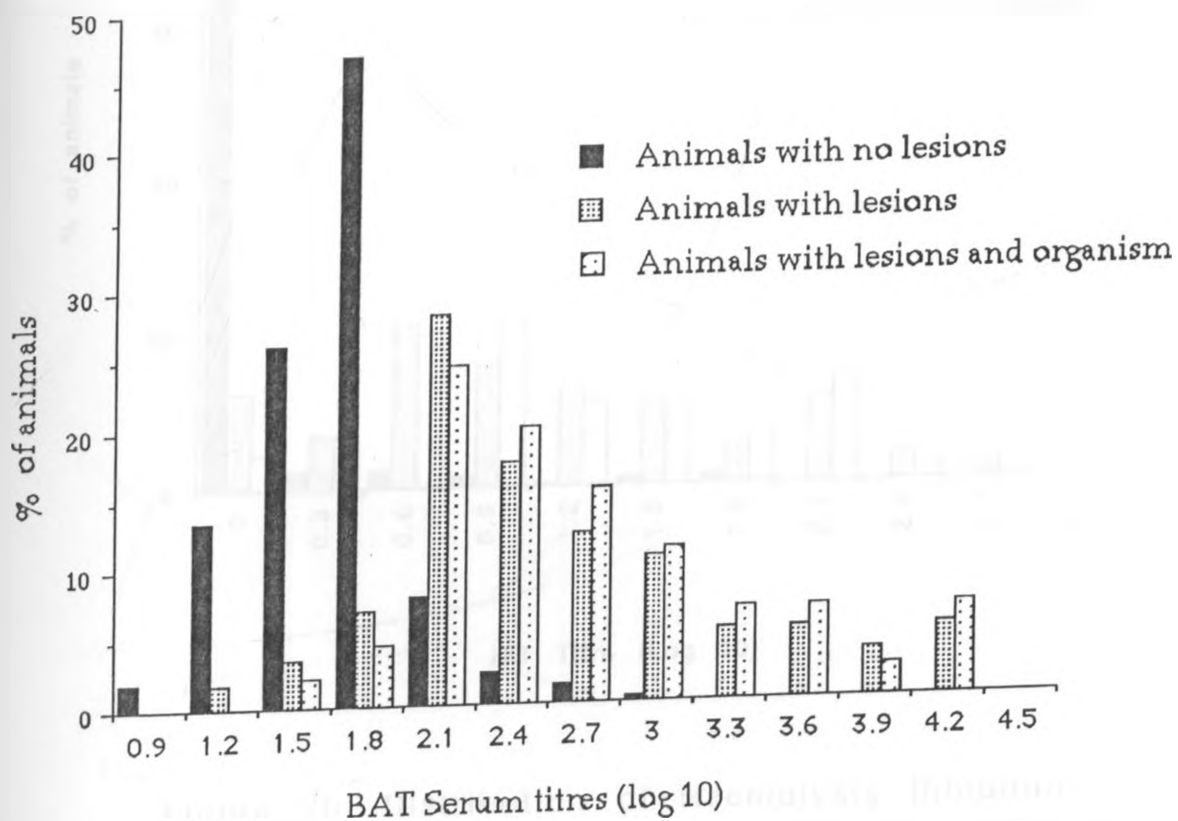


Fig.7a

Distribution of Bacterial agglutination test (BAT) titre values among sheep and goats with and without caseous lymphadenitis during postmortem inspection.

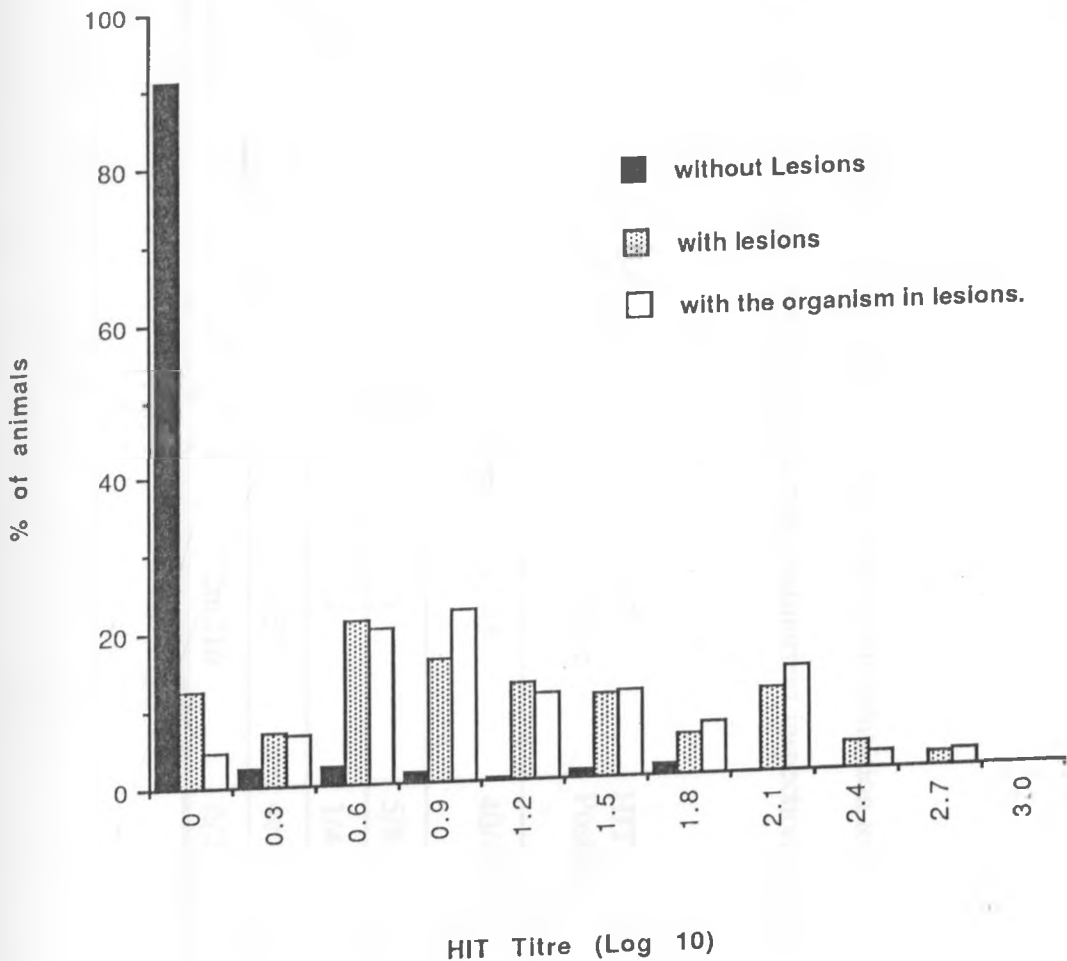


Figure 7b. Distribution of Haemolysis Inhibition test (HIT) titres, among sheep and goats with or without caseous lymphadenitis during postmortem meat inspection.

Table 5: Bacterial agglutination test (BAT) and Haemolysis inhibition test (HIT) results of sera from sheep and goat carcasses with and without caseous lymphadenitis during postmortem inspection and the corresponding bacteriological findings.

Postmortem findings	Bacteriological Results	BAT Positive	HIT Positive	BAT and HIT		BAT or HIT Positive
				Positive	Negative	
A) Lesions present	i) <i>C.pseudotuberculosis</i>	42/45	40/45	39/45	2/45	43/45
	ii) Other organisms	6/8	5/8	5/8	2/8	6/8
	iii) Sterile	2/4	1/4	1/4	2/4	2/4
	Total	50/57	46/57	45/57	6/57	51/57
B) No lesions	-	26/216	6/216	4/216	188/216	28/216

4.2. The routes of infection.

4.2.1. Clinical examination.

Results of clinical examination of test lymphnodes over a nine week period are given in Table 6. In group 1 (innoculated subcutaneously), goat number 12 died of pneumonia three days post infection. On day two, the two remaining animals in the group (Nos. 1 and 2) were lame on the right hind leg. Injection sites were tender. The highest recorded rectal temperatures were 39.8°C and 38.5°C respectively. On day three, the animals were weak, inappetent and injection sites were swollen. Lameness was not apparent after the first week. On the third week, swellings of the injection sites were hard and sharply defined while the prescapular site in Goat No. 1 was discharging creamy odourless pus. The test precrural node of Goat No. 1 and both prescapular and precrural nodes of Goat No. 2 were palpably swollen. By the fourth week, all injection sites were discharging and test precrural nodes in both animals were visibly swollen.

In group 2 (innoculated intradermally), injection sites and test lymphnodes were swollen by day three in all three goats. Rectal temperatures were 38.0°C, 37.7°C and 37.7°C, respectively. Test lymphnodes were swollen by day four and by day six, injection sites were discharging pus through fistulae. Two weeks post infection, there was caked pus on all injection sites. This was followed by scab formation, sloughing off and healing of the skin by week four. Goat No. 5 died of pneumonia on day 21. Goat No. 6 developed a subcutaneous abscess close to the test prescapular lymphnode.

In group 3 (infected on scarified skin), animals infection sites were slightly swollen by day one all three animals. Rectal temperatures were 37.2°C, 37.4°C and 37.5°C respectively. Test lymphnodes in Goat No.8 were swollen by day three. After week one, there was scab formation followed by healing of infection sites in all three animals. Test

lymphnodes in goats Nos. 10 and 11 were slightly swollen by week two. Goat number eight died of pneumonia on day 36. Test precrucial node in goat number 11 was visibly swollen by week five.

In groups 4 (infected on intact skin) and 5 (control), Goat No. 9 died of a non-determined cause five days after infection. There was no clinically detectable changes in the rest of the animals in the two groups during the course of the experiment.

4.2.2. Haematological findings.

White blood cell counts increased in groups 1, 2 and 3 up to the second week post infection and then dropped back to the original level by week six. The highest increase was recorded in group 1 followed by 2 and 3 respectively (Fig.8). No change in counts was observed in groups 4 and 5.

Statistical analysis performed by a one factor (group) analysis of variance indicated that the variation of means between groups was significant ($p=0.0001$). The Scheffe's F-test indicated that on the basis of means, the groups could be separated into three namely 1 and 2; 2,3 and 4; and 5 alone (Table 7).

Table 6: Clinical and postmortem (pm) findings in regional lymphnodes of goats infected with *C. pseudotuberculosis* through various routes.

CLINICAL SWELLING

GROUP	INFECTION ROUTE	GOAT NO.	LYMPHNODE	DAY						WEEK					ABSCESS AT PM	
				1	2	3	4	5	6	1	2	3	4	9		
1	S/C	1	A	-	-	-	-	-	-	-	-	-	-	-	-	+
			B	-	-	-	-	-	-	-	-	-	-	-	-	++
		2	A&B	-	-	-	-	-	-	-	-	-	+	++	++	-
		12	A&B	0	0	0	0	0	0	0	0	0	0	0	0	-
11	I/D	5	A&B	-	-	+	+	+	+	+	+	+	0	0	++	
		6	A&B	-	-	+	+	+	+	+	+	+	++	++	++	
		7	A&B	-	-	+	+	+	+	+	+	+	+	+	+	+
111	Scarification	8	A&B	-	-	+	+	+	+	+	+	+	+	0	+	
		10	A&B	-	-	-	-	-	-	-	-	+	+	+	+	+
		11	A&B	-	-	-	-	-	-	-	-	+	+	+	++	+
IV	Intact skin	13	A&B	-	-	-	-	-	-	-	-	-	-	-	-	-
		14	A&B	-	-	-	-	-	-	-	-	-	-	-	-	-
		9	A&B	0	0	0	0	0	0	0	0	0	0	0	0	-
V	Control	3	A&B	-	-	-	-	-	-	-	-	-	-	-	-	-
		4	A&B	-	-	-	-	-	-	-	-	-	-	-	-	-

KEY:

Lymphnode A = prescapular;
 i/d = intradermal;
 ++ = Markedly positive;

B = precrural;
 - = Negative;
 s/c = Subcutaneous;

+ = positive
 0 = No data.

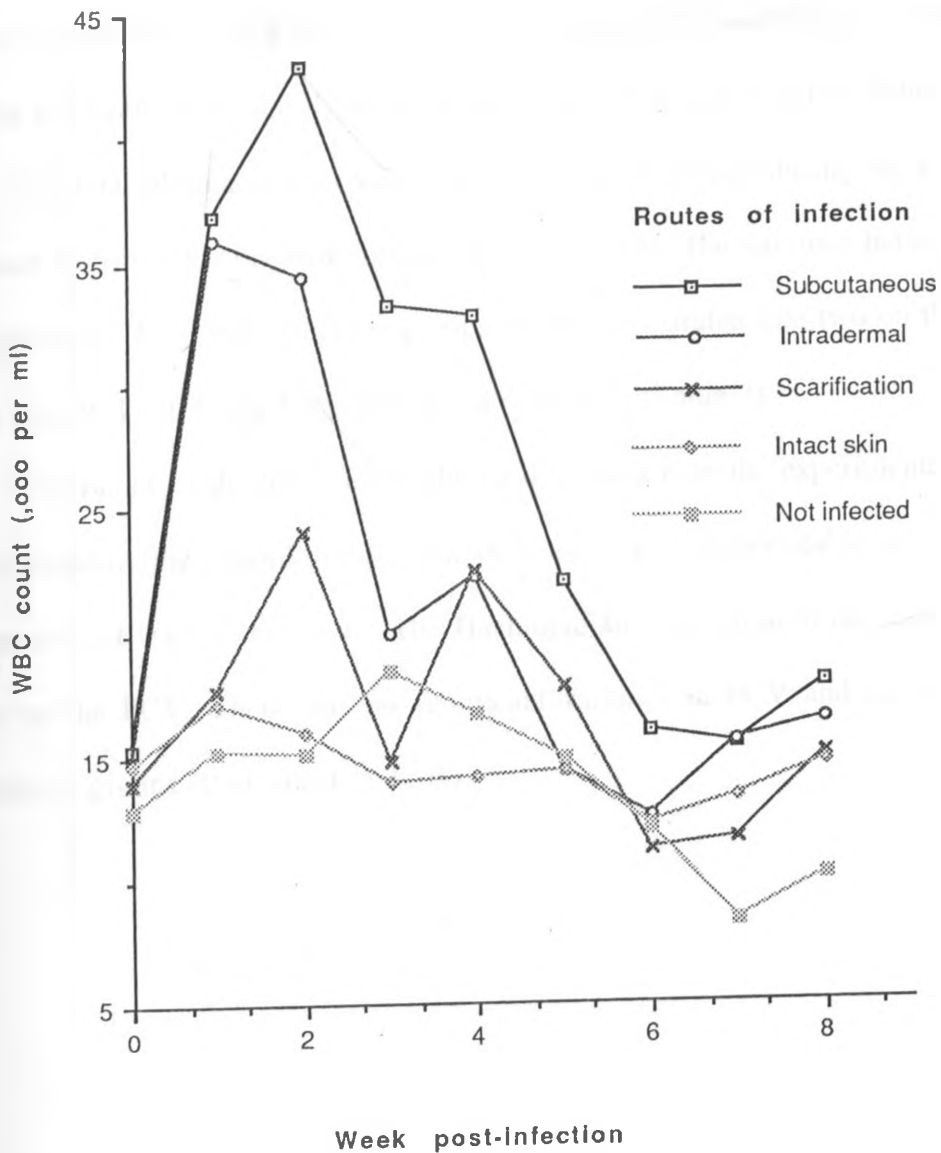


Figure 8. Changes in white blood cell (WBC) counts in goats following infection with *C. pseudotuberculosis* through different routes.

The percent blood neutrophil count also increased, and more significantly in the first three groups, an indication that the increase in white blood cell count was partly due to a neutrophilia. Figure 9 shows the group average weekly % neutrophil count. The variance between the groups was significant ($P=0.0001$) with significant Scheffe's F-test differences between the means in groups 1 and 4, 1 and 5, 2 and 4, and 2 and 5 (Table 7).

The total plasma protein values increased in all groups during week one and then decreased to below the original concentrations (Fig.10). The variance between the groups was significant ($P=0.0001$) and the groups could be separated into two on the basis of the means namely 1, 2, 3 and 4 together and 5 separately (Table 7).

The values of the haematocrit (PCV) decreased over the experimental period in all groups including the control group. The decrease was most noticeable in groups 2, 3 and 5 (control) and least in group 4. The Haemoglobin concentration decreased in a similar pattern as the PCV. There was no significant variance in PCV and haemoglobin values between the groups ($P=0.0869 > 0.05$)

Table 7.

Scheffe's F-test for separation of mean haematological values in goats infected with *C. pseudotuberculosis* through different routes.

Haematological parameter.	Route of infection.				
	1	2	3	4	5
Leucocyte count	25.8 ^a	21.7 ^{ab}	17.0 ^{abc}	14.7 ^{bc}	13.7 ^c
% Neutrophil count	1.4 ^a	1.3 ^a	0.9 ^{ab}	0.7 ^b	0.5 ^b
Haematocrit	26.7 ^a	25.7 ^a	26.3 ^a	24.6 ^a	23.9 ^a
Total plasma protein	6.70 ^a	7.3 ^a	6.9 ^a	6.7 ^a	5.9 ^b

Key: Route 1 = Subcutaneous

2 = Intradermal

3 = Scarified skin

4 = Intact skin

5 = Not infected

Means with different superscripts are significantly different within rows ($p < 0.05$).

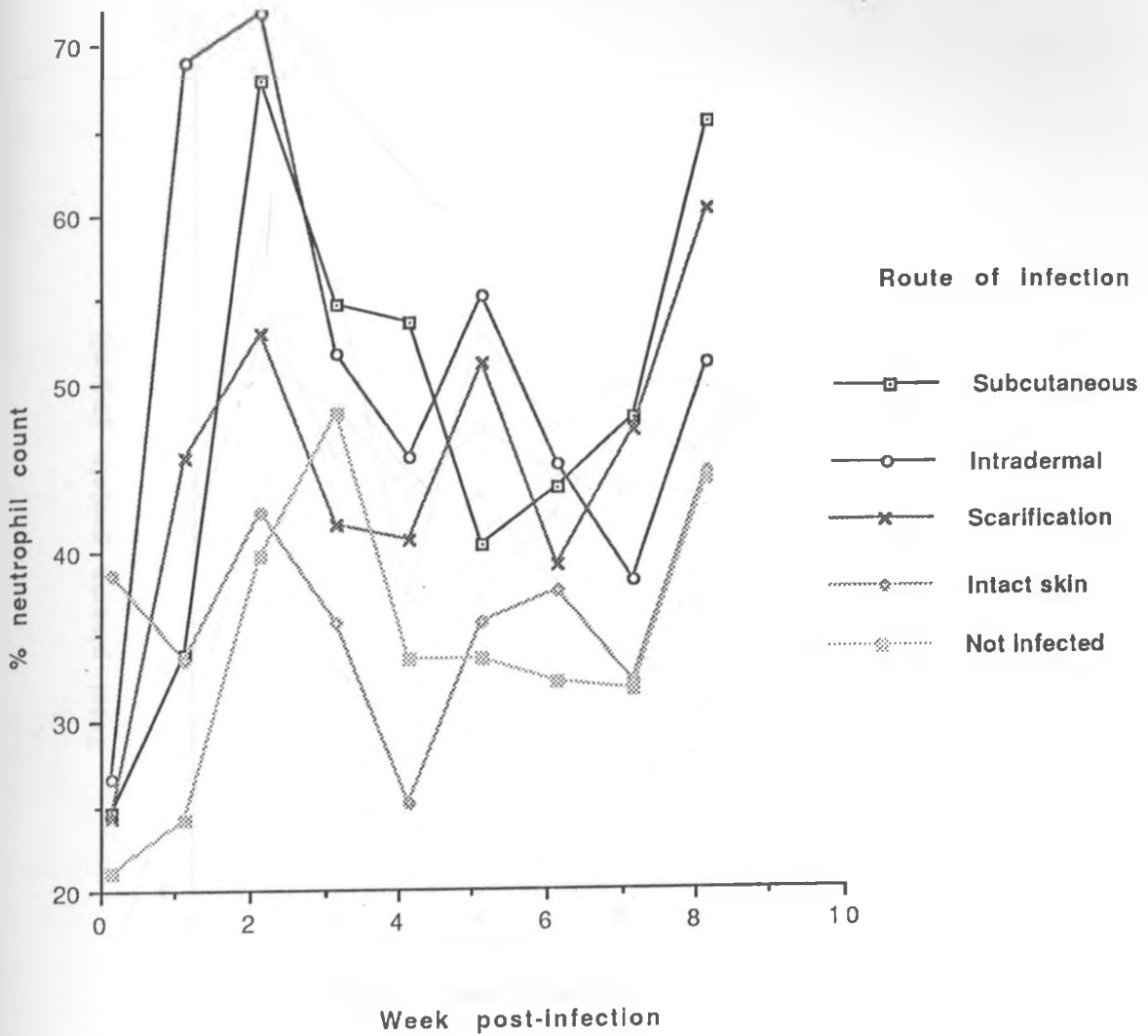


Figure 9. Changes in % neutrophil count in goats following exposure to C. pseudotuberculosis through different routes.

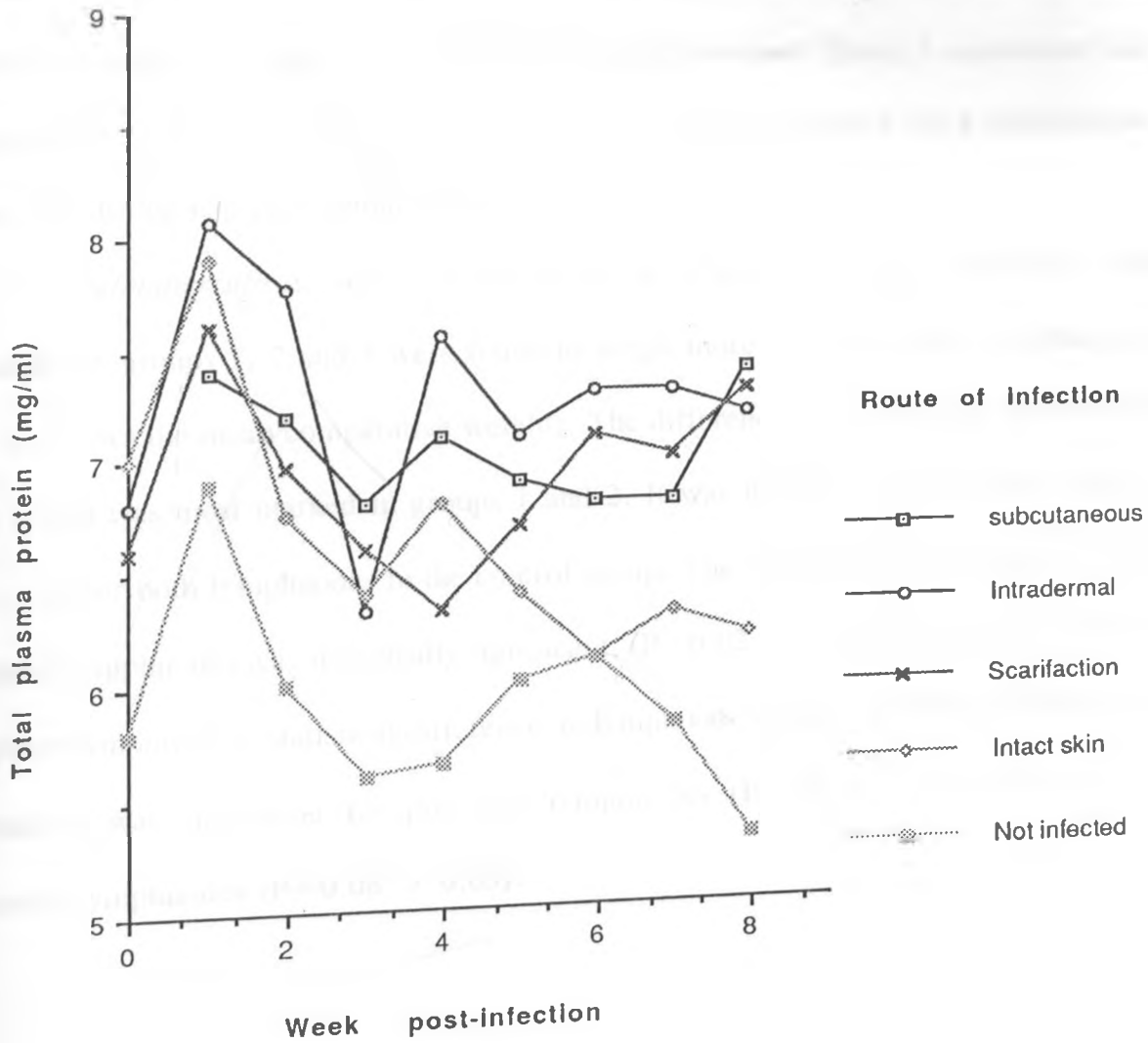


Figure 10. Changes in total plasma protein concentration in goats following infection with *C. pseudotuberculosis* through different routes

4.2.3. Postmortem findings.

Test prescapular and precrural lymphnodes of animals in groups 1,2 and 3 were abscessed and enlarged (Figs. 11-14). The results are summarised in Table 6. No other lymphnodes, superficial or internal, or organ was found abscessed. Group 1 animals also had subcutaneous abscesses at the sites of injection and Goat No.6 of group 2 had a subcutaneous abscess close to the test prescapular node.

C.pseudotuberculosis was isolated from all abscesses in pure cultures. Test lymphnodes in groups 1, 2 and 3 were found to weigh more than the control lymphnodes. Figure 15 shows the mean comparative weights. The difference in weights between test and control nodes was most marked in groups 1 and 2. It was negative for precrural nodes in group 4 and for both lymphnodes in the control group. The weight differences between test and control lymphnodes was statistically significant, ($P=0.02 < 0.05$) for both precrural and prescapular lymphnodes. Statistical difference in lymphnode weights between groups (routes of infection) was significant for precrural lymphnodes ($P=0.04 < 0.05$) but not for prescapular lymphnodes ($P=0.08 > 0.05$).



Fig.11

Prescapular (ps) and precrural (pc) draining lymphnodes in a goat infected subcutaneously with *C. pseudotuberculosis* caseous abscess material, showing enlargement and abscessation of the test lymphnodes (right) as compared to the contralateral control (left) lymphnodes. Note the creamy caseous material in the test lymphnodes (arrows).



Fig.12

Draining lymphnodes, prescapular (ps) and precrural (pc) in a goat infected intradermally with *C. pseudotuberculosis* caseous abscess material, showing enlargement and abscessation of the test lymphnodes (right) as compared to the contralateral control (left) lymphnodes. Note the large protruding caseous abscess (arrows) on the test lymphnodes.



Fig. 13.

Prescapular (ps) and precrural (pc) lymphnodes in a goat infected on scarified skin with *C. pseudotuberculosis* caseous abscess material, showing enlargement and abscessation of the test lymphnodes (right) as compared to the contralateral (control) lymphnodes on the left. Note the marked enlargement of the right prescapular lymphnode and the caseous abscesses (arrows).

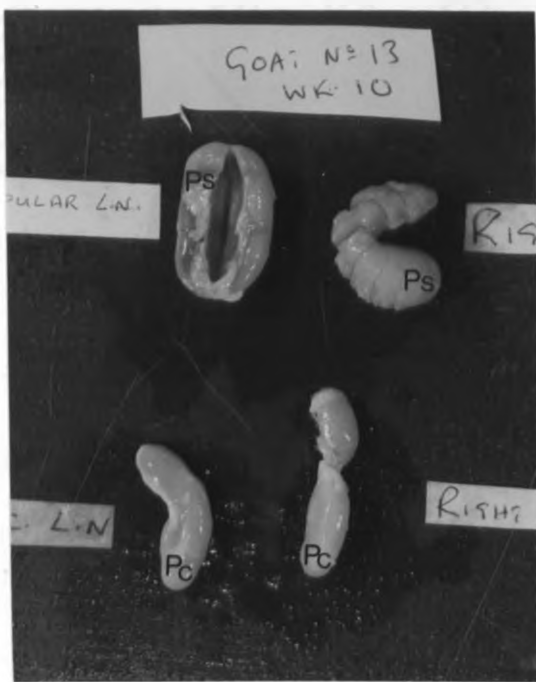


Fig.14

Draining lymphnodes, prescapular (ps) and precrural (pc) in a goat infected on intact skin with *C. pseudotuberculosis* caseous abscess material showing failure of abscessation of both the test (right) as well as the contralateral control (left) lymphnodes.

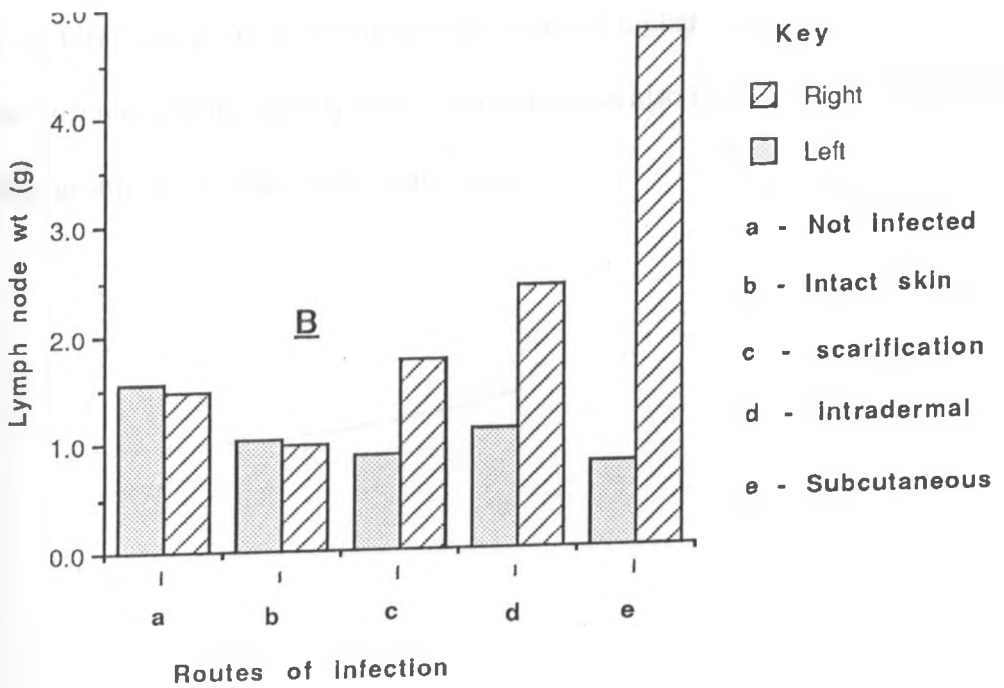
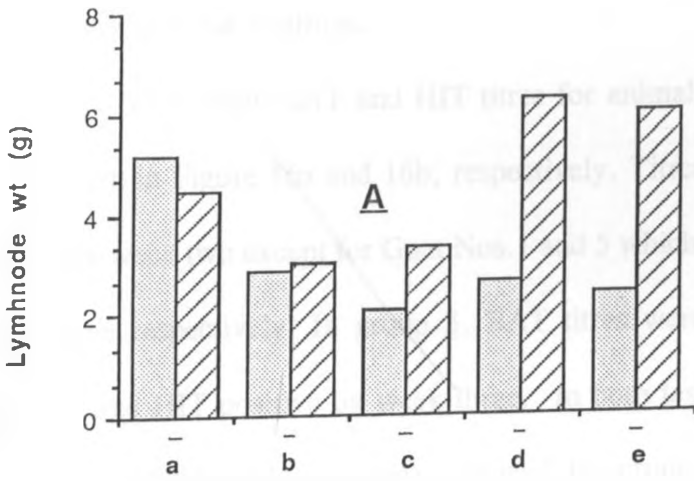
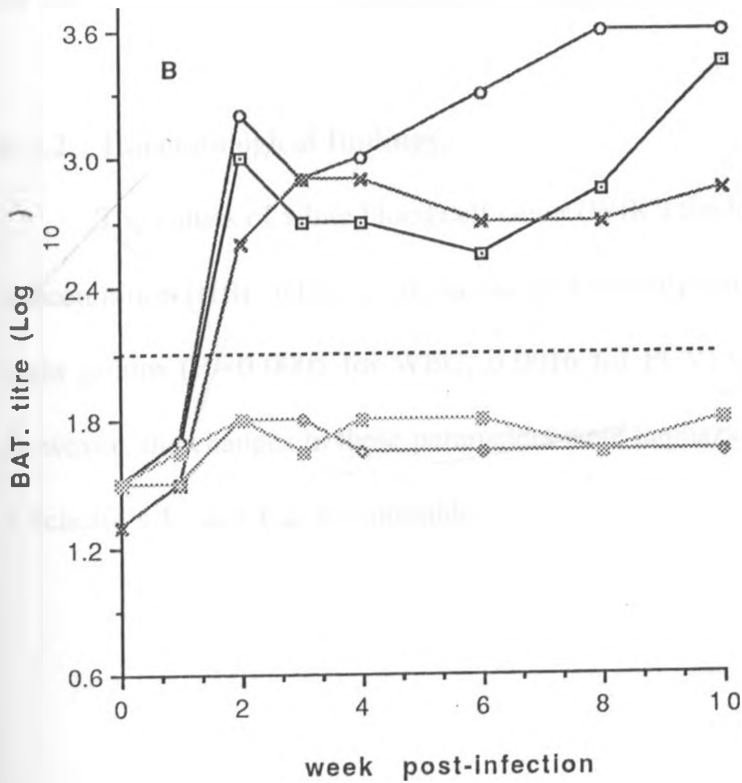
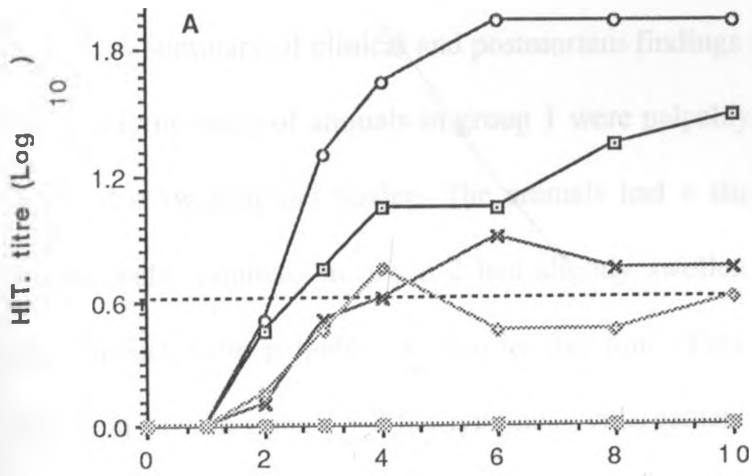


Figure 15. Weights of draining lymph nodes (prescapular (A) and precrural (B)) in goats infected with *C. pseudotuberculosis* through various routes.

4.2.4. Serological findings.

Weekly mean BAT and HIT titres for animals infected through the different routes are shown in Figure 16a and 16b, respectively. Titres were positive for animals in group 1 and 2 by week two except for Goat Nos. 1 and 5 which were not HIT positive until week four and three respectively. In group 3, BAT titres were positive by week two (except Goat No.10) and HIT positive by week three. In both tests, the highest titres were observed in group 2 (Intradermal infection) followed by group 1, (Subcutaneous infection) and 3 (Scarified skin), respectively.

A two factor analysis of variance comprising of group (route of infection) and week post infection (time) showed that the mean titre differences between groups was significant ($P=0.001$) indicating that some groups attained higher titres and at a faster rate than others. The difference in the weekly increase in titres was also significant ($P=0.0001$) indicating that some groups responded faster than others.



- Route of infection**
- Subcutaneous
 - Intradermal
 - ×— Scarification
 - ◇— Intact Skin
 - ⊠— Not Infected
 - Threshold titre

Figure 16. Serological response in goats following infection with *C. pseudotuberculosis* through different routes. A=Haemolysis inhibition test (HIT). B=Bacterial agglutination test (BAT).

4.3. The minimum dose of infection for CLA.

4.3.1. Clinical examination findings.

A summary of clinical and postmortem findings in test lymphnodes is given in Table 8. Test lymphnodes of animals in group 1 were palpably swollen by day two. Injection sites were also swollen and tender. The animals had a slight pyrexia of 38.5°C and 38.2°C, respectively. Animals in group 2 had slightly swollen injection sites by day two and test lymphnodes were palpably swollen by day four. There was no swelling or inflammation of injection sites in groups 3-8 but lymphnode enlargement was detected in some or all animals in group 3 on day six; in groups 4 and 5 on day 21; in group 6 on day 28; and in group 7 on day 21. There was no palpable enlargement of lymphnodes detected in group 8.

4.3.2. Haematological findings.

The values of white blood cell count (WBC) the haematocrit (PCV), the haemoglobin concentration (HB) and the total plasma protein (TP) were significantly different between the eight groups ($P=0.0005$ for WBC; 0.0016 for PCV; 0.007 for HB; and 0.0376 for TP). However, the changes in these parameters were haphazard. As such, separation of means by a Scheffe's F- test was not possible.

Table 8: Clinical and postmortem findings in draining lymphnodes of goats infected intradermally with different doses of *C. pseudotuberculosis*.

Clinical swelling/Days post infection

GROUP	GOAT NO.	LYMPH NODE	1	2	3	4	5	6	7	9	11	21	28	35	PM	TOTAL
1	15	A&B	-	+	+	+	+	+	+	+	+	+	+	+	CL	4
	16	A&B	-	+	+	+	+	+	+	+	+	+	+	+	CL	
2	17	A	-	±	±	+	+	+	+	+	+	+	+	+	NCL	3
	22	B	-	±	±	+	+	+	+	+	+	+	+	+	CL	
		A&B	-	±	±	+	+	+	+	+	+	+	+	+	CL	
3	18	A&B	-	-	-	-	±	+	+	+	+	+	+	+	CL	4
	19	A&B	-	-	-	-	-	±	±	±	±	+	+	+	CL	
4	27	A	-	-	-	-	-	-	-	-	-	-	-	-	CL	3
	21	B	-	-	-	-	-	±	±	±	±	±	±	±	CL	
		A	-	-	-	-	-	-	-	-	-	-	-	-	CL	
		B	-	-	-	-	-	-	-	-	-	+	+	+	CL	
5	29	A&B	-	-	-	-	-	-	-	-	-	+	+	+	CL	3
	30	A	-	-	-	-	-	-	-	±	±	+	+	+	CL	
		B	-	-	-	-	-	-	-	-	-	-	-	-	NCL	
6	23	A	-	-	-	-	-	-	-	-	-	-	+	+	CL	2
	24	B	-	-	-	-	-	-	-	-	-	-	-	-	NCL	
		A	-	-	-	-	-	-	-	-	-	-	+	+	CL	
		B	-	-	-	-	-	-	-	-	-	-	-	-	NCL	
7	31	A	-	-	-	-	-	-	-	-	-	-	-	-	NCL	1
	32	B	-	-	-	-	-	-	-	-	-	+	+	+	CL	
		A&B	-	-	-	-	-	-	-	-	-	-	-	-	NCL	
8	25	A&B	-	-	-	-	-	-	-	-	-	-	-	-	NCL	0
	26	A&B	-	-	-	-	-	-	-	-	-	-	-	-	NCL	

KEY: A = Prescapular lymphnode
 B = Precurral lymphnode
 - = Not swollen
 + = Swollen

± = Swelling not definite
 CL = Abscessed
 NCL = Not abscessed
 PM = Postmortem

4.3.3. Postmortem Findings.

All four (4/4) test lymphnodes of animals in group 1 were found abscessed at postmortem (Table 8). The frequency of abscessation was as follows; 3/4 in group 2, 4/4 in group 3, 3/4 in group 4, 3/4 in group 5, 2/4 in group 6, 1/4 in group 7 and 0/4 in group 8. The average difference in weight between the test and control lymphnodes in each group is shown in Fig. 17. Twelve out of sixteen (12/16) preescapular and 13/16 precrural test lymphnodes weighed more than the contralateral control lymphnodes. The difference in weights within groups was statistically significant by an unpaired students T-test ($P=0.002$ for precrural and $P=0.04$ for preescapular lymphnodes, respectively). The difference in weights between test and control lymphnodes was not statistically significant between the groups ($P= 0.10$ for precrural and 0.17 for preescapular lymphnodes respectively). However, with the exception of groups 5 and 6, the decrease of the difference with decrease in dose of infection was quite apparent (Fig.17).

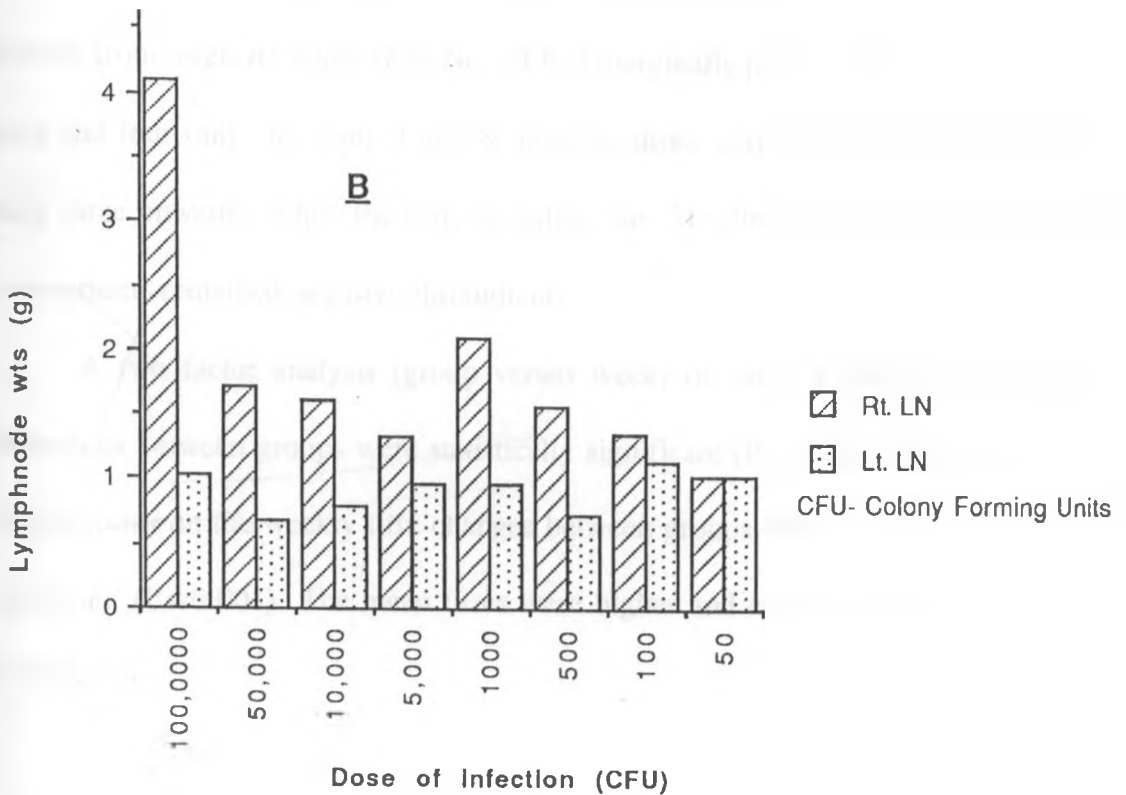
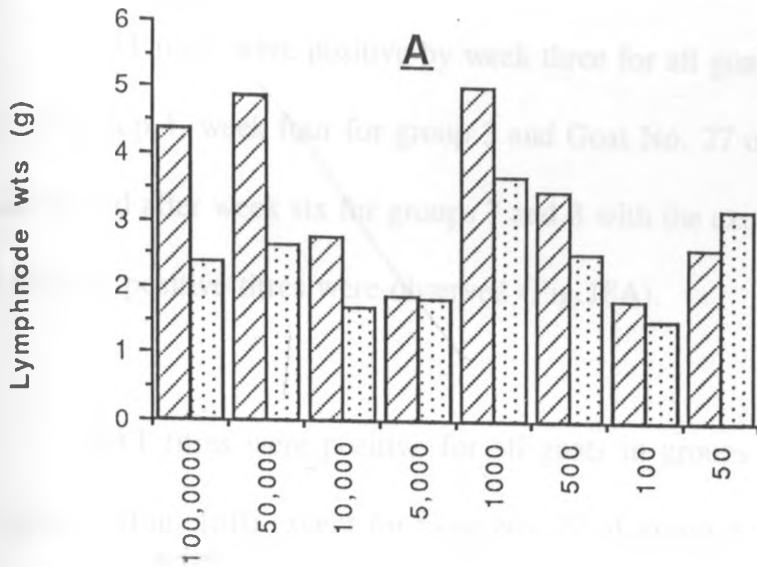


Figure 17. Weights at postmortem of draining lymphnodes (prescapular, (A) and precrural, (B) in goats following intradermal infection with different doses of C. pseudotuberculosis.

4.3.4. Serological findings.

HIT titres were positive by week three for all goats in groups 1 and 2 and Goat No. 21 of group 4, week four for group 3 and Goat No. 27 of group 4, week five for groups 5 and 6, and after week six for groups 7 and 8 with the exception of Goat No. 32 and 26 from which no positive titres were observed (Fig. 18A).

BAT titres were positive for all goats in groups 1, 2, 3 and 4 by week two post infection (Fig. 18B) except for Goat No. 27 of group 4 which was not positive until week three. In group 5, Goat No. 30 remained negative throughout the experimental period while Goat No. 29 had positive titres from week four onwards. In group 6, Goat No. 23 was positive from week six while Goat No. 24 had marginally positive titres (2.1) between weeks three and four only. In group 7 and 8, positive titres were observed only in No. 32, from week three onwards, while the rest, including No. 31 which had an abscessed lymph node at postmortem, remained negative throughout.

A two factor analysis (group versus week) of variance indicated that mean titres differences between groups were statistically significant ($P = 0.001$ for both tests) and that the difference in the weekly titre changes between groups were significant ($P=0.001$). The mean titres were higher and also rose faster with higher doses of infection.

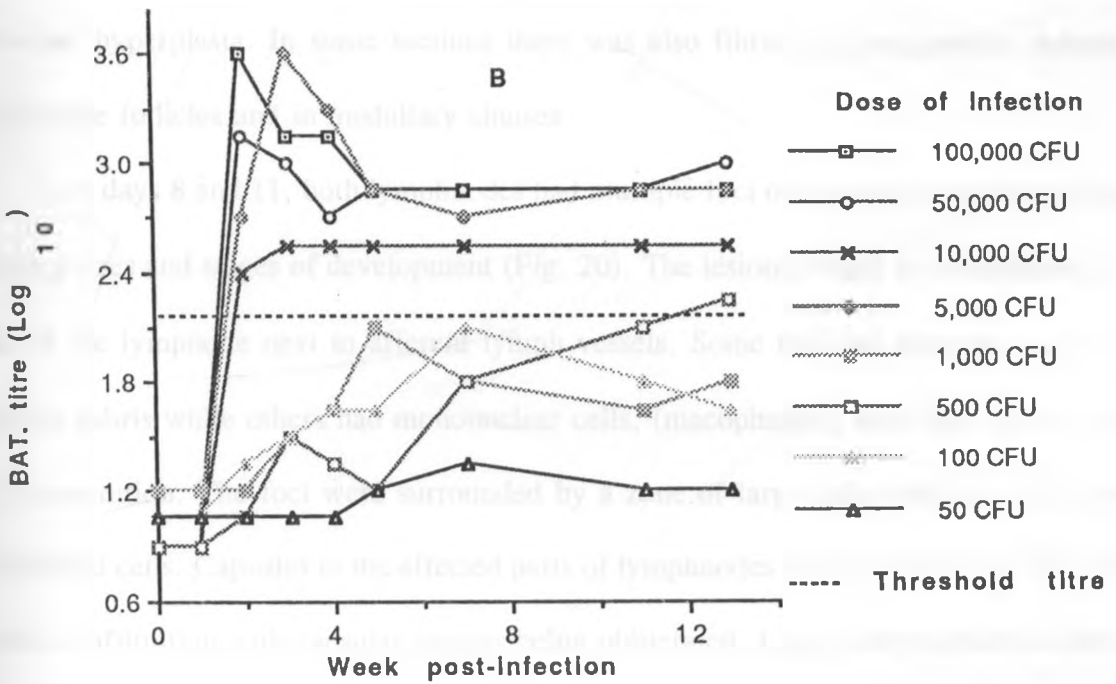
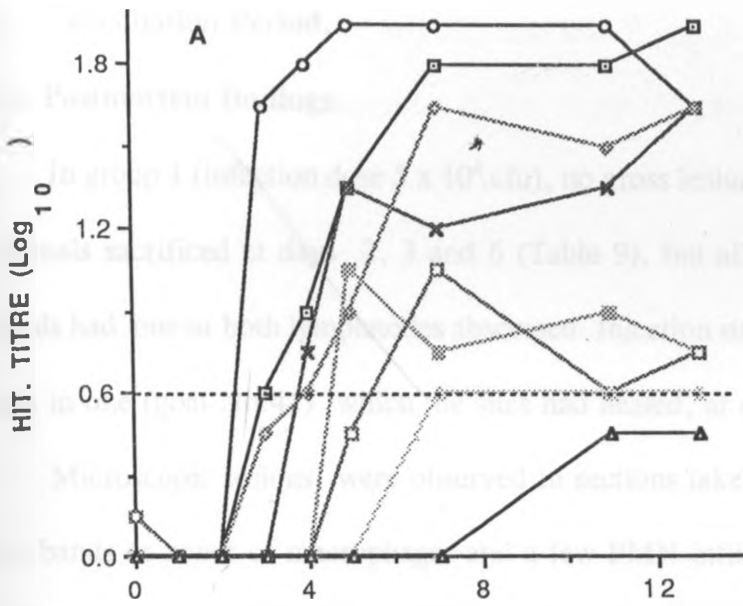


Figure 18. Serological response in goats following intradermal infection with different doses of *C. pseudotuberculosis*.
A=Haemolysis inhibition test (HIT).
B=Bacterial agglutination test (BAT).

4.4. Incubation Period.

4.4.1. Postmortem findings.

In group 1 (infection dose 5×10^4 cfu), no gross lesions were observed in lymphnodes of animals sacrificed at days 2, 3 and 6 (Table 9), but all animals sacrificed from day 8 onwards had one or both lymphnodes abscessed. Injection sites of all animals were abscessed except in one (goat No.41) which the sites had healed, at day 34.

Microscopic lesions were observed in sections taken at days 2-6. The lesions were either bands or zones of macrophages and a few PMN infiltration, starting from the cortex and extending towards the medulla (Fig. 19), or focal accumulation of these cells in trabecular sinuses. The infiltrating macrophages had a strongly eosinophilic cytoplasm. There was also oedema of the sinuses (capsular and medullary), inflammation of the capsule and follicular hyperplasia. In some sections there was also fibrin-like eosinophilic deposits in lymphnode follicles and in medullary sinuses.

At days 8 and 11, both lymphnodes had multiple foci of pyogranulomatous lesions of varying sizes and stages of development (Fig. 20). The lesions tended to be confined to one half of the lymphnode next to afferent lymph vessels. Some foci had necrotic centres with nuclear debris while others had mononuclear cells, (macophages), and PMN in the process of degeneration. The foci were surrounded by a zone of large macrophages and immature epithelioid cells. Capsules in the affected parts of lymphnodes were thickened by fibrosis and cellular infiltration with capsular sinuses being obliterated. Lymphnodes sections at days 17, 25, and 34 had one or more capsulated lesions with typical CLA morphology (Fig. 21).

In the group 2 animals (infected with 1×10^5 cfu), abscessed lymphnodes were observed in all goats sacrificed from day nine onwards except in one (goat No.51) sacrificed at day 20. Injection sites abscessed in all goats except in two in which there was only

necrosis at the surface (nos. 50 and 51), and one in which the sites had healed, (No. 42).

Microscopically, the picture at days 2, 5 and 7 showed marked oedema, capsulitis and marked follicular hyperplasia. At days 9, 11, 14 and 17, both lymphnodes of Goats 4Nos. 6, 47 and 50 and the precrural node of Goat No. 48 had multiple focal pyogranulomas of different sizes, with or without capsulations. Lesions in goat 48 were surrounded by an extensive zone of lymphoid necrosis while prescapular node of the same animal (no grossly visible lesion), had one microscopic pyogranuloma within a locally extensive are of necrosis. In the unaffected parts of lymphnodes, all four animals had marked follicular hyperplasia.

In goat 51, (sacrificed at day 20) although no grossly visible lesions were found, a microscopic granuloma located adjacent to the capsule and surrounded by a zone of fibrosis was observed in the precrural node.

Table 9: Postmortem findings in skin and draining lymphnode and BAT and HIT titres in goats infected with 5×10^4 colony forming units (cfu) of *C. pseudotuberculosis* (Group 1), 10^5 cfu (Group 2) or with caseous abscess material on scarified skin (Group 3).

GROUP	GOAT NO.	DAY SACRIFICED	SITE 1		SITE 2		SEROLOGY	
			LN	SKIN	LN	SKIN	BAT	HIT
1	33	2	-	+	-	+	1.2	-
	34	3	-	+	-	+	1.2	-
	35	3	-	+	-	+	1.5	-
	36	6	-	+	-	+	1.5	-
	73	8	+	+	+	+	1.5	-
	38	11	+	+	+	+	1.5	-
	39	17	+	+	-	+	3.0	0.3
	40	25	-	+	+	+	3.0	0.6
	41	34	+	H	+	H	3.0	2.4
2	43	2	-	+	+	+	1.8	-
	49	5	-	+	+	+	1.8	-
	44	7	-	+	+	+	1.8	-
	46	9	+	+	+	+	1.8	-
	47	11	+	+	+	+	1.5	-
	48	14	-	+	+	+	1.8	-
	50	17	+	Nec.	+	Nec.	2.7	-
	51	20	-	Nec.	-	Nec.	3.6	1.2
	52	27	+	+	+	+	3.6	0.6
	42	30	+	H	+	H	2.7	0.9
3	62	5	-	-	-	-	1.2	-
	67	7	-	-	-	-	1.2	-
	70	9	-	-	+	-	0.9	-
	68	11	+	-	+	-	1.2	-
	175	13	+	-	+	-	1.5	-
	71	15	+	-	-	-	2.1	-
	64	17	+	-	+	-	2.1	-
	66	19	+	-	+	-	2.4	-
	69	21	+	-	-	-	2.7	0.9
	72	23	+	-	+	-	2.4	1.2

KEY:

+ = Abscessed
 - = Not abscessed
 Nec. = Necrosis

H = Healed
 Site 1 = Prescapular
 Site 2 = Precurral

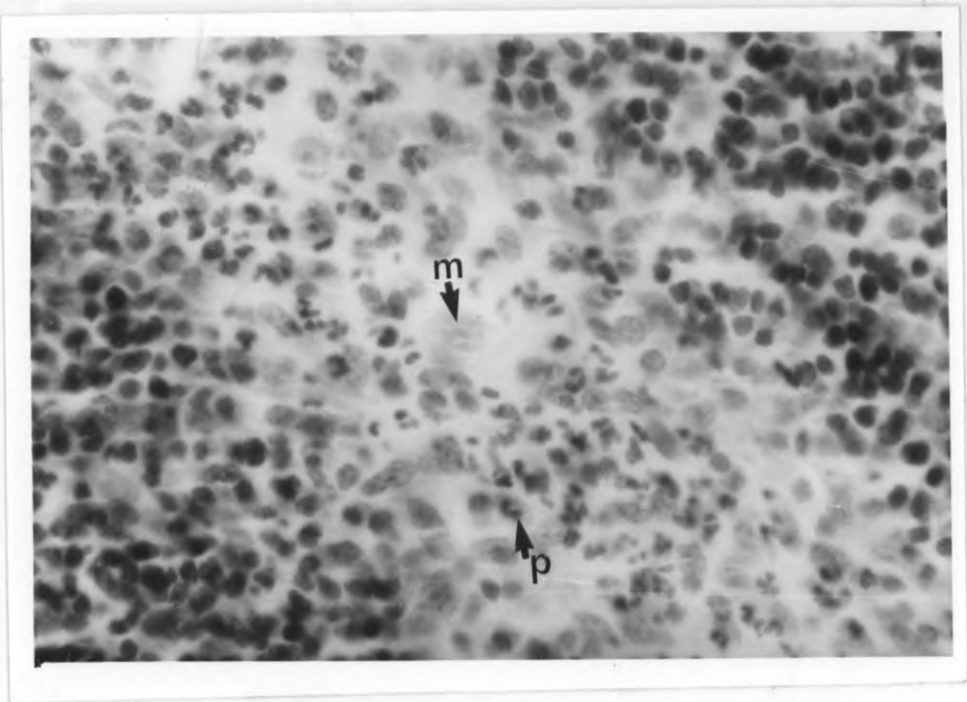


Fig.19

The initial lesion in a goat prescapular lymphnode showing a band composed of macrophages (m) and polymorphonuclear granulocytes (p) infiltration 2 days after intradermal infection with 5×10^4 cfu of *C. pseudotuberculosis*. H & E. x 630.

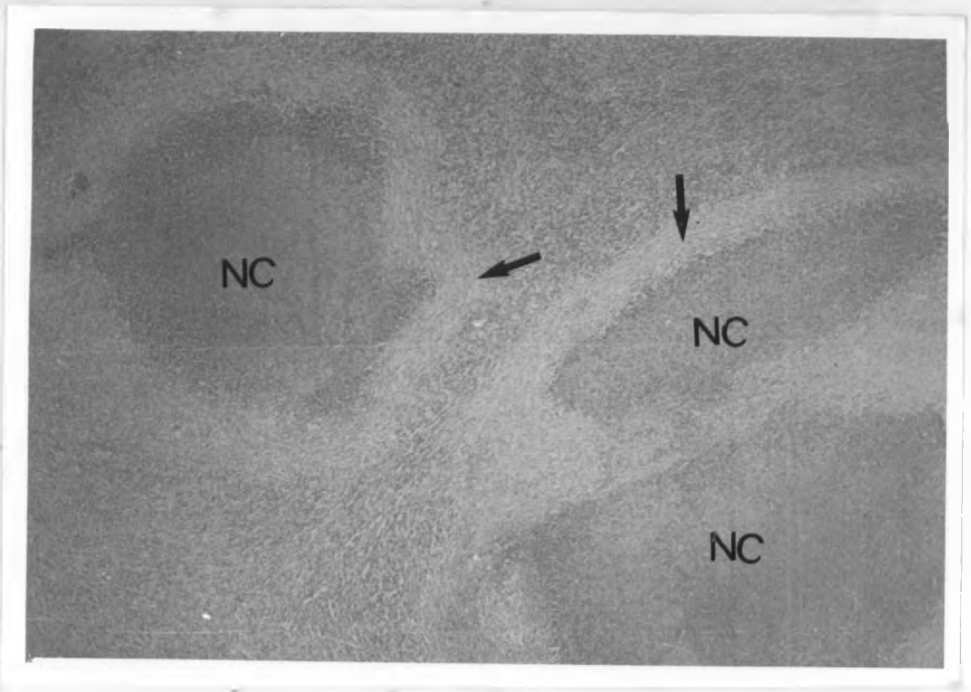


Fig.20

Multiple caseous lymphadenitis lesions in the prescapular lymphnode of a goat, 11 days after intradermal infection with 5×10^4 cfu of *C. pseudotuberculosis*. Note the whitish zone (arrowed) surrounding each necrotic centre (NC). The zones are composed of epithelioid and giant cells.

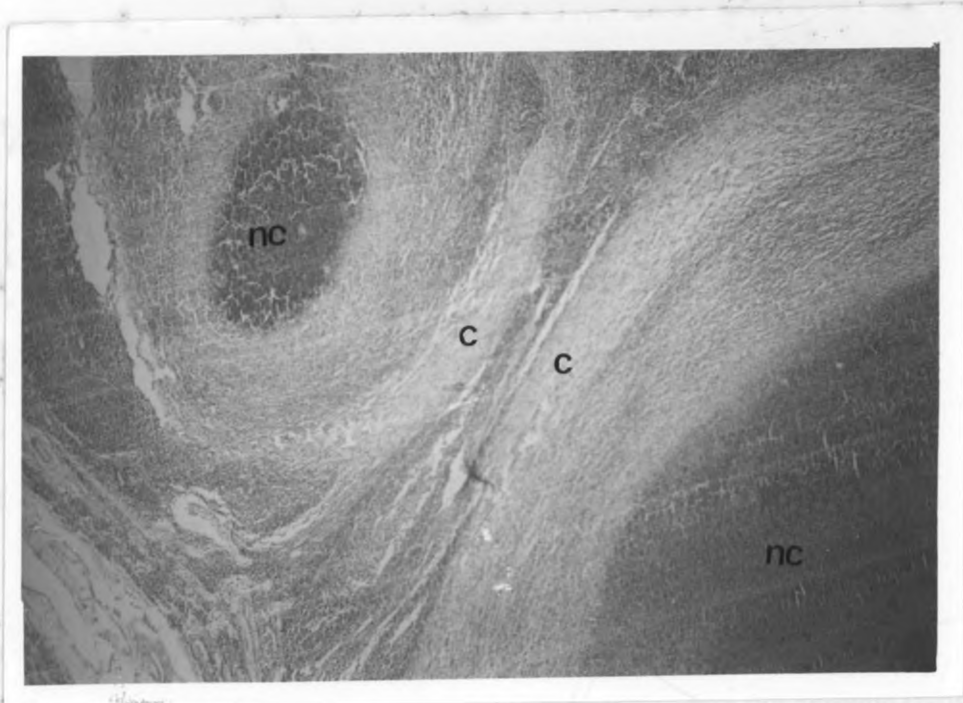


Fig. 21

Multiple capsulated caseous lesions in the draining prescapular lymphnode of a goat 25 days after intradermal infection with 5×10^4 cfu of *C. pseudotuberculosis*. NC =necrotic centre, C = capsule. H & E x 100.

Animals sacrificed at days 27 and 30 had one or several capsulated pyogranulomas. In addition, the prescapular node of Goat No. 52 had several circumscribed foci of lymphoid necrosis but without any cellular infiltration.

In Group three animals (infection by scarification), abscessed lymphnodes were observed from day nine onwards. However in three of the animals (Nos. 70, 71 and 69) only one lymphnode was affected. Lesions of the injection sites were those of scab formation in early stages and none at later stages .

Histologically, there was thickening of capsules due to fibrosis and also conspicuous follicular activity in lymphnode sections taken at days 5 and 7. There was also mild PMN infiltration in the medullary sinuses.

Lymphnode sections taken at days 9 and 11 (goat nos. 70 & 68) had multiple granulomas of different sizes distributed randomly in the sections, and extensive fibrosis in the rest of the lymphnode parenchyma. Lesions in the rest of the animals (Nos. 175, 71, 66, 64, 69, and 72) consisted of one large or several typical CLA pyogranulomas, with thick capsules.

Control lymphnodes.

No caseous lesions were seen in all control lymphnodes from all the three groups of goats. Microscopic changes were however seen and varied according to the dose of infection. No changes were observed in animals infected by scarification. In animals infected with 5×10^4 cfu, (group 1), changes were observed from days 3-8. There was marked follicular hyperplasia and also oedema of sinuses. Macrophages in medulla had brownish-yellow globular material in their cytoplasm, which resembled haemosiderin, especially in goats Nos.34, 35 and 36. There was also fibrin-like material deposits in the follicles and capillaries

especially in goat No.35. In goat No.36, there was also infiltration of sinuses by PMN. In goat Nos.38-41 there was little or no follicular activity and oedema was not conspicuous. In goat No. 39 there was the globular material in cytoplasm of macrophages in the medulla while in goat No.40, the capsule was thickened and infiltrated with mononuclear cells and PMN. There was also a marked accumulation of macrophages with eosinophilic cytoplasm in the medullar sinuses. In animals infected with 1×10^5 cfu, (group 2), contralateral lymphnodes had intense follicular hyperplasia in goat Nos.43-48 (days 2-14) and especially in goat Nos.49, 44 and 48 (Fig. 22). Accompanying the hyperplasia was marked oedema. In goat Nos.42-50 there was little or no activity.

Skin Lesions.

The initial lesion observed in the skin injection site was that of diffuse macrophage and polymorphonuclear granulocyte (PMN) infiltration in the dermis, but with multiple foci of a more intense infiltration. The infiltration was also more marked around blood vessels (Fig.23). There was also marked hyperplasia of the stratum spinosum .

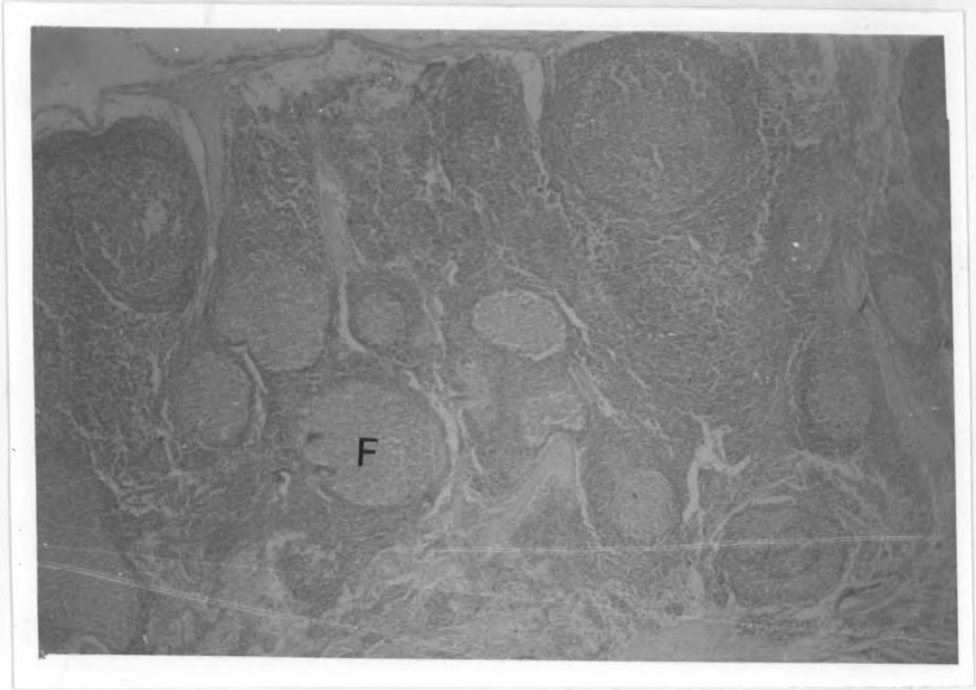


Fig.22

Hyperplasia of lymphoid follicles (f) in a contralateral draining prescapular lymphnode of a goat, 5 days after intradermal infection with 10^5 cfu of *C. pseudotuberculosis*. H & E x 100.

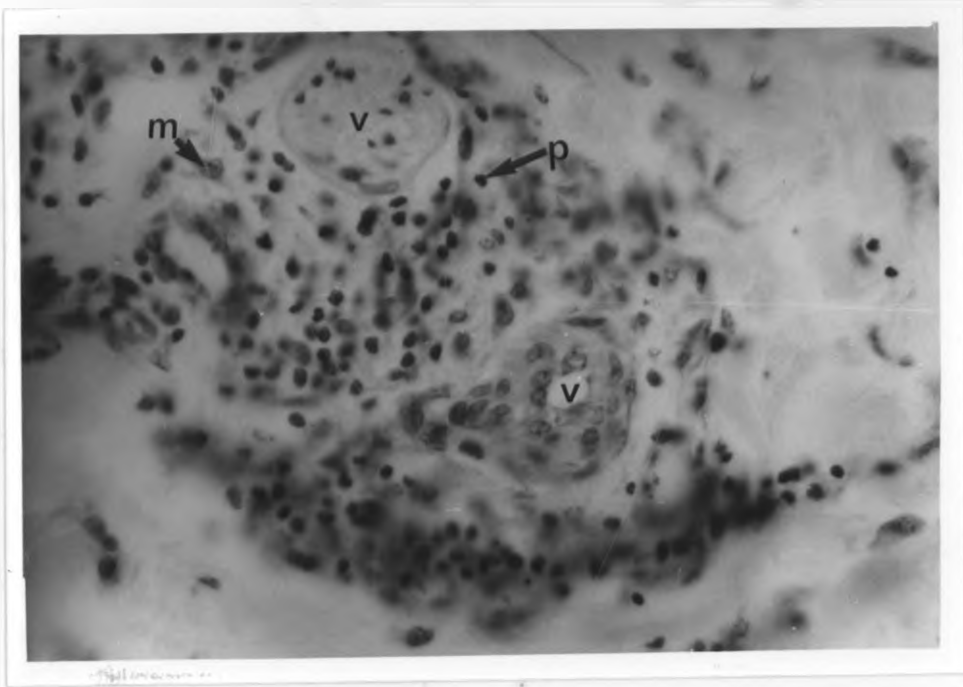


Fig.23

Mononuclear (m) and polymorphonuclear granulocytes (p) infiltration around skin blood vessels (v) in a goat 2, days after intradermal infection with 5×10^4 cfu of *C pseudotuberculosis*. H & E x 400.

Lesions observed later were those of one or more unroofed abscesses (Fig 24), composed predominantly of disintegrating mononuclear cells centrally, (Fig. 25). At the periphery, the abscess was composed of a mixture of mononuclear cells and PMN. The abscess was surrounded by a zone of large macrophages, epithelioid and multinucleated giant cells followed by a zone of macrophage, lymphocytes and fibroblasts. Later sections showed capsulated abscesses that had ruptured to the surface. The lesions then healed by formation of granulation tissue (Fig 26).

In goats infected by scarification, there was a purulent necrosis of epithelium and mononuclear infiltration in the dermis. The lesions then healed by formation of granulation tissue.

4.4.2. Serological findings.

Positive BAT and HIT titres were recorded on days 17 and 25, 17 and 20, and 15 and 21 in groups 1, 2, and 3 respectively, (Table 9). Goat No. 51 of group 2 (sacrificed on day 20), which had no grossly observable lesions, had a BAT and a HIT titre of 3.0 and 1.2 respectively by day three.

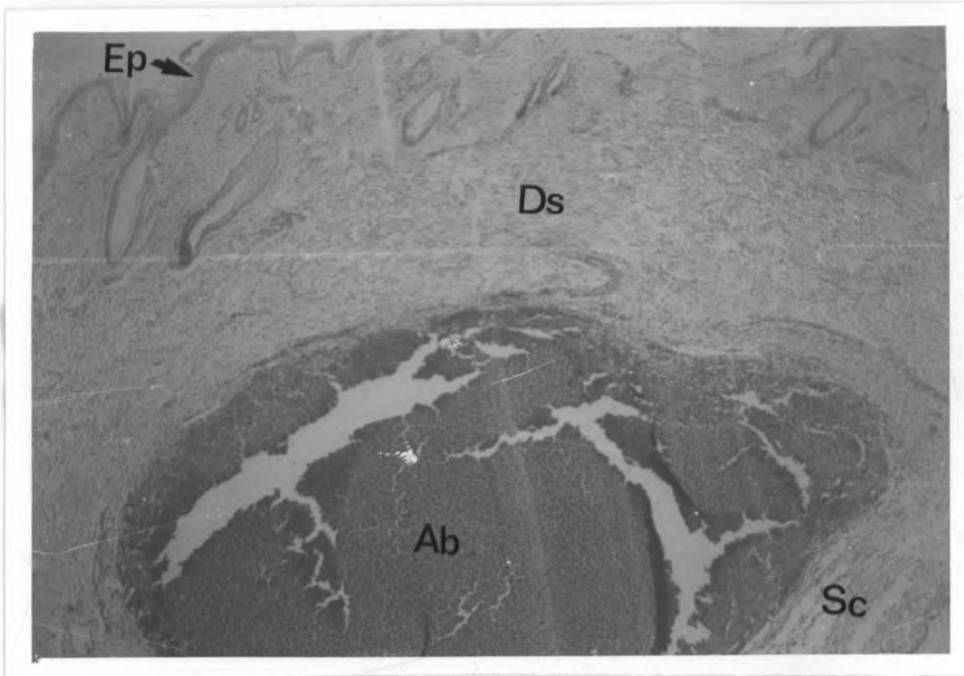


Fig. 24

An intradermal caseous abscess (Ab) in a goat six days after intradermal infection with 5×10^4 cfu of *C. pseudotuberculosis*. Ep = epidermis, Ds = dermis and Sc = subcutis. H & E x 40.

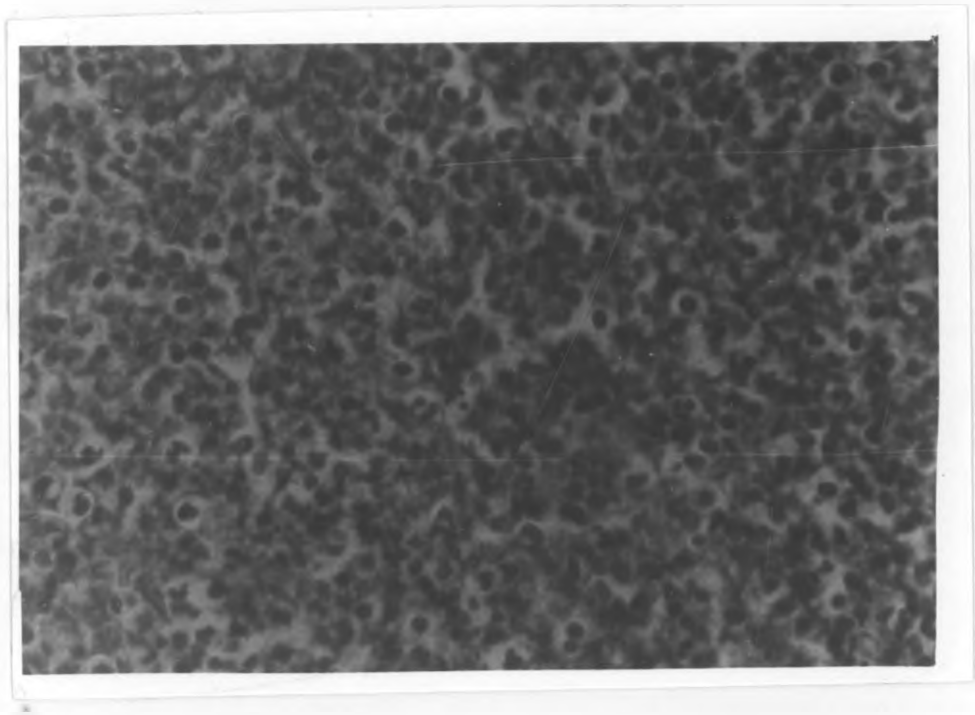


Fig. 25

Central region of a caseous intradermal abscess in a goat showing a predominance of mononuclear cells. H & E x 400.

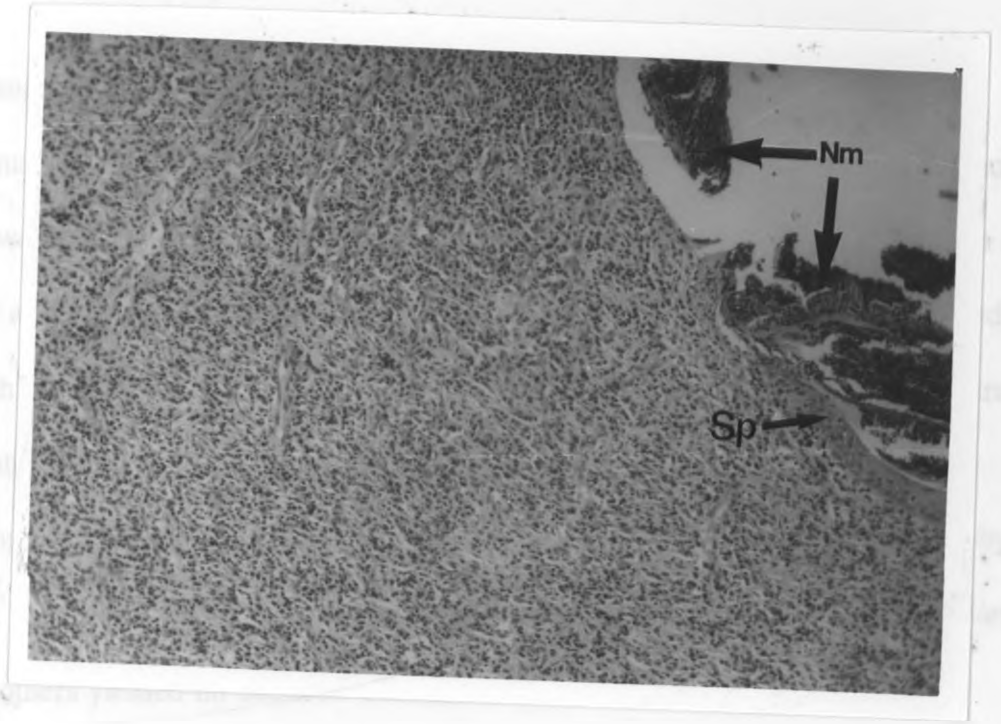


Fig. 26

Healing of a caseous intradermal abscess in a goat by formation of granulation tissue, 34 days after intradermal infection with *C. pseudotuberculosis*. Note the necrotic epithelial material (Nm) and the regenerating stratum spinosum (Sp). H & E x 100.

4.5. Pathogenicity of *C. pseudotuberculosis* fractions and whole cell preparations.

4.5.1. Extraction of the surface lipid.

A sample weight of 10.54 grams of dried cells was extracted with ether. The lipid yield was 0.746 grams. This indicated that lipid content of dried cells was 7.08%. The lipid was orange-yellow in colour and sticky in consistency, at room temperature, and flaky at -20°C.

4.5.2. Pathogenicity of the surface lipid.

Animals injected with the waxy lipid preparation from *C. pseudotuberculosis* showed a marked swelling of draining lymphnodes by the second day post injection. Injection sites were tender and later swollen and hard. By the third week, injection sites were thickened and necrotic. This was followed by ulceration in some sites while others discharged purulent necrotic material. This was followed by scab formation, sloughing off and healing.

Lymphnode enlargement subsided after 2 weeks and sizes were back to normal by the third week. *Actinomyces (Coccynebacterium) pyogenes* was isolated from four discharging sites while others yielded no bacterial isolates.

There was also thickening of control injection sites but without progressing to necrosis and ulceration. No swelling of control draining lymphnodes was observed.

At postmortem, animals sacrificed at days 6 and 9 had thickened injection sites that were black on the cut surface (Due to activated charcoal). Test lymphnodes were enlarged and capsules adhered to the surrounding tissues which had a "cooked" appearance. There were haemorrhages in the lymphnode parenchyma but no abscesses. At day 24 and 30 injection sites were abscessed. In the latter case, the abscess material was waterly and discharged to the exterior through a fistular. The lymphnodes were hard and had a fibrotic

consistency. On day 30, 34 and 42 dark areas were grossly visible on the cut surface of test lymphnodes. The kidneys were enlarged and greyish in colour. In goat No.53, there was a caseous abscess in the left diaphragmatic lung lobe measuring 2cm x 4cm. No bacteria were isolated from the abscess.

Control injection sites were dark on the underside while some control lymphnodes had dark colourations on the cut surfaces.

Histopathology.

Skin sections.

Sections of skin samples obtained at day 6 and 9 post injection showed necrosis of collagen fibres in the dermis and also infiltration by mononuclear cells and PMN. The infiltration had caused considerable thickening of the sections. Blood vessels were congested.

Sections at day 24 had increased cellular infiltration, necrosis of collagen and also acanthosis and hyperplasia of the epidermis. At days 30-40, sections had multiple foci of intense macrophage and PMN infiltration. The rest of skin dermis was diffusely infiltrated with mature macrophage, large macrophages, epithelioid and multinucleated giant cells and fibroblast. Some of the lesions had ruptured and discharged to the surface, causing epithelial necrosis.

In test lymphnodes, the initial lesions (day 6-9) consisted of inflammation of a section of the capsule. This section was infiltrated with macrophages, lymphocyte and PMN. Below the inflamed section, there was necrosis of lymphoid tissue which extended towards the medulla (Fig 27). This necrosis was more pronounced along and around trabeculae. Multinucleated giant cells and also macrophages containing eosinophilic globular material in their cytoplasm were present in the necrotic areas. Some macrophages were in the process

of disintegration as evidenced by karyolysis and karyorrhexis of their nuclei. In the rest of the lymphnode section, there was mild follicular activity.

By day 24, follicular hyperplasia was marked, in addition to the necrosis. In later sections (Day 30-40) there was both local extension as well as multiple focal pyogranulomatous reactions in most parts of the sections. The focal reactions were similar to those of CLA lesions and consisted of a necrotic centre of nuclear debris surrounded by a zone of macrophages, epithelioid and numerous giant cells all of which contained droplets of the injected oily material in their cytoplasm (Fig.28). The local extension reactions consisted of infiltrations by macrophages, epithelioid and multinucleated giant cells and few PMN. Lymphnode capsules were thickened and had fused with the cortex. Blood vessels in the capsules showed degenerative changes, of discontinuation of the intima and hyperplasia of the endothelium. There was also vascular thrombosis.

The lung lesion in goat No. 53 consisted of a capsulated granuloma and arteritis of the vessels around the lesion (Fig.29). In the kidney sections, there was focal interstitial lymphocytic infiltration (Fig. 30).

In the control injection sites, sections were thickened due to infiltration by mononuclear cells and also proliferation of fibroblasts. Among the mononuclear cells were multinucleated giant cells. There was generally no reaction of the epithelium.

Control lymphnodes initially had inflammation of the capsule and also circular plaque-like empty areas of different sizes in the cortex and along trabeculae. Later there was marked follicular hyperplasia.

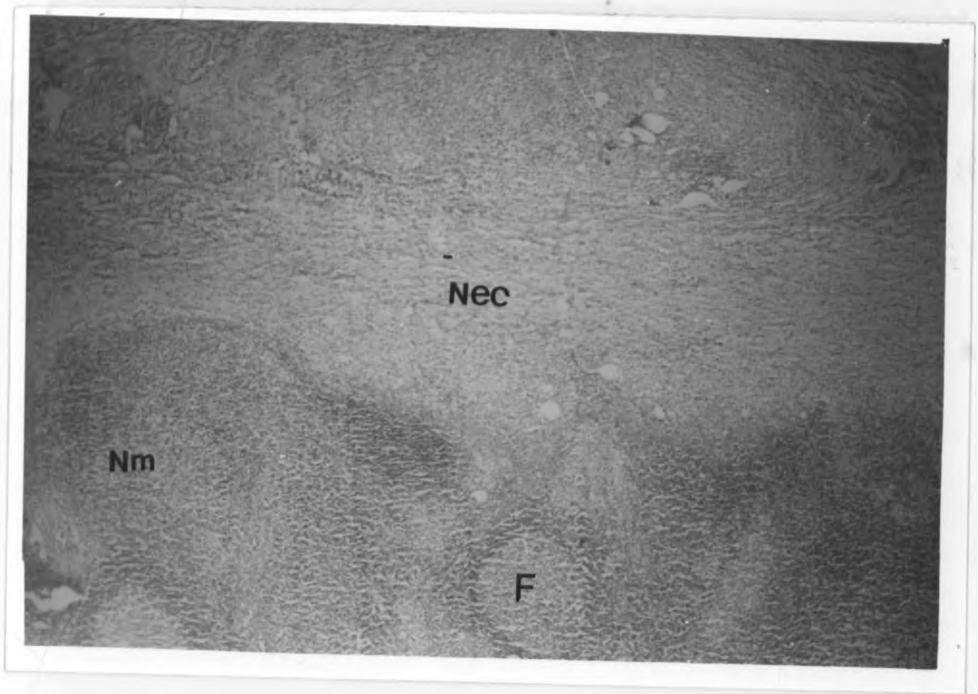


Fig.27

Initial lesion of lymphoid necrosis (Nec) and infiltration in a prescapular lymphnode cortex of a goat 6 days after intradermal injection with the surface lipid of *C. pseudotuberculosis*. Nm = normal tissue, F = lymphoid follicle. H & E x 40.

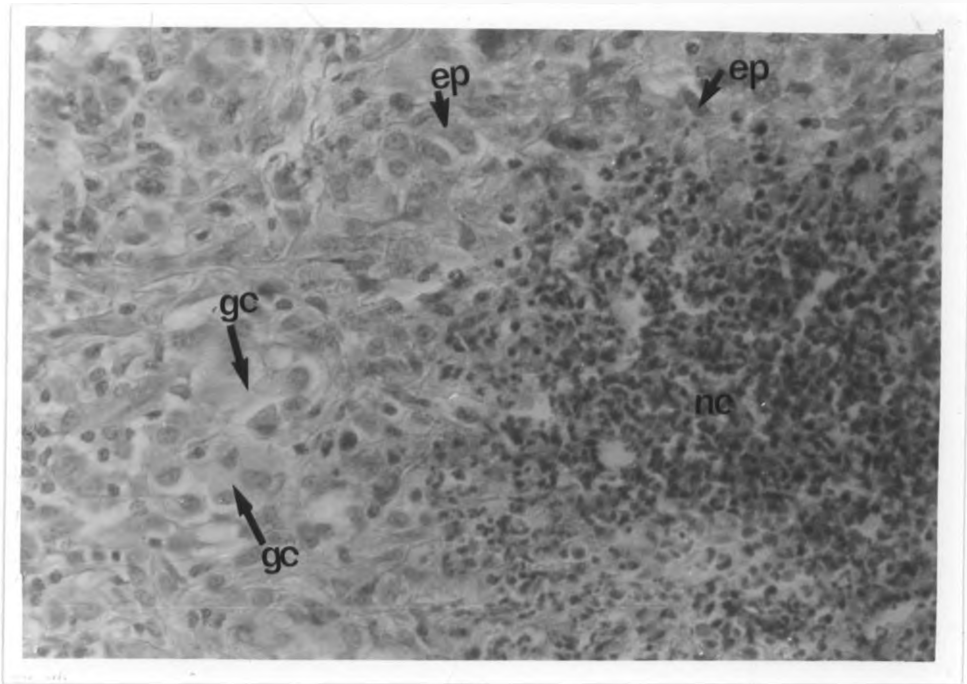


Fig. 28

A pyogranulomatous lesion composed of a necrotic centre (Nc) of macrophages and polymorphonuclear granulocytes, surrounded by a zone of epithelioid (Ep) and giant cells (Gc) in a lymphnode of a goat, 30 days after intradermal infection with the surface lipid of *C. pseudotuberculosis*. Note the droplets of the material in the cytoplasm of the giant cells. H & E x 400.



Fig.29

Caseous lesion (CL) in the lung of a goat injected intradermally with the surface lipid of *C. pseudotuberculosis*. FC = fibrous capsule, LT = Lung tissue. H & E x 100.

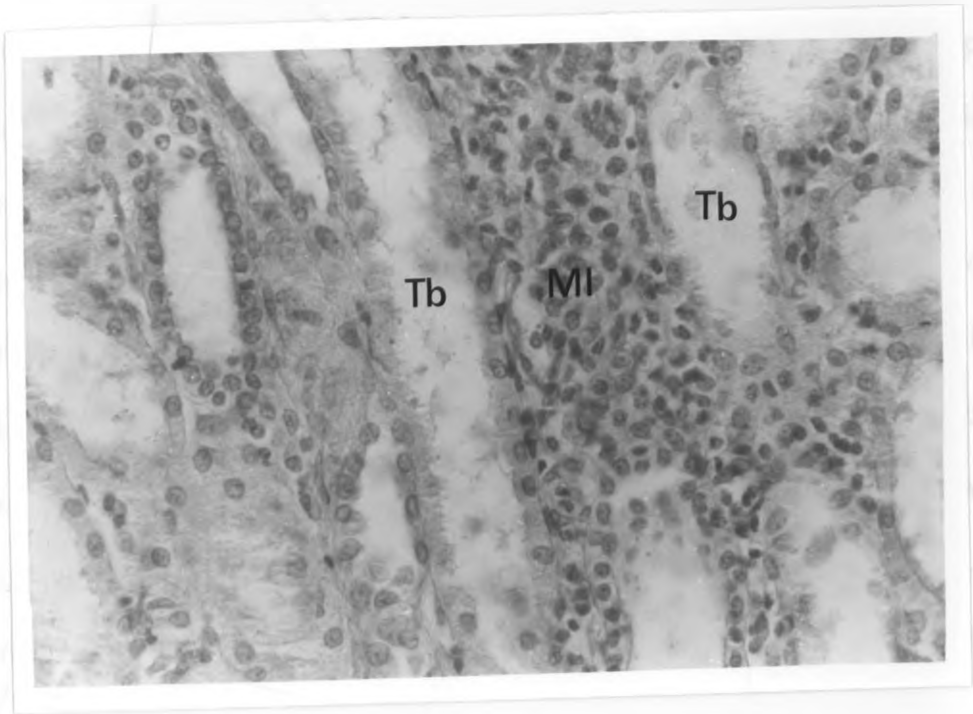


Fig. 30

Focal interstitial mononuclear infiltration (MI) in kidneys of a goat injected intradermally with the surface lipid of *C. pseudotuberculosis*. Tb = tubule. H & E x 400.

4.5.2. Extracellular toxin.

Clinical observation and gross pathology.

There was swelling of test injection sites and draining lymphnodes by the 2nd day. The swelling of injection sites was due to oedema. The swelling increased and was quite marked by day eight and one animal was discharging caseous pus from injection sites. Lymphnode swelling subsided by the 2nd week but injection sites were discharging pus. No bacteria was isolated from the pus. In later stages of observation, (day 17 -35), injection sites were ulcerated and necrotic.

At post mortem, early sacrifices (day 9-24) had haemorrhage, congestion and oedema of test lymphnodes and the surrounding subcutaneous tissues. There was also fibrinous adhesions between test lymphnode capsules and surrounding tissues. At injection sites there was intradermal caseous material from which no bacterial isolates were recovered. Animals sacrificed later, (Day 30 and 35) had ulceration and necrosis of injection sites and in both animals (56 and 57) there were grossly visible abscesses in both test prescapular and precrural lymphnodes.

Histopathology.

Sections of samples taken at day 9 had necrosis of collagen fibres and multiple foci of infiltration by macrophages and PMN amidst a diffuse infiltration by large macrophages, epithelioid and giant cells. A section of epithelium was necrotic and had purulent material on the surface. The intact epithelium had marked acanthosis and hyperplasia of stratum spinosum (Fig. 31). There was also furunculosis, haemorrhage and embolism. Samples taken at day 24 had large abscesses at both injection sites and also acanthosis, hyperplasia and necrosis of epithelium. In later samples, there was diffuse granulomatous reaction with

complete destruction of collapse tissue down to the subcutis and also extensive necrosis of epithelium.

In test lymphnodes, there was oedema, inflammation of the capsule and locally extensive lymphoid necrosis. There was also plaque-like empty foci in the necrotic areas and along trabeculae indicating extracellular spaces occupied by the toxin-oil emulsion. In animals sacrificed later (Day 30 and 35) there were multiple foci of pyogranulomatous reaction similar to those observed in animals injected with the surface lipid. The foci composed of either necrotic pink material with nuclear debris or an accumulation of macrophages and PMN surrounded by epithelioid and giant cells (Fig. 32). Some foci had a peripheral fibroblast zone. Other parts of the sections had lymphoid necrosis and fibrosis. The control skin sections showed increased cellularity with resultant thickening, due to mononuclear cell infiltration, but no necrotic changes. Control lymphnodes initially had no lesions but later had follicular hyperplasia.

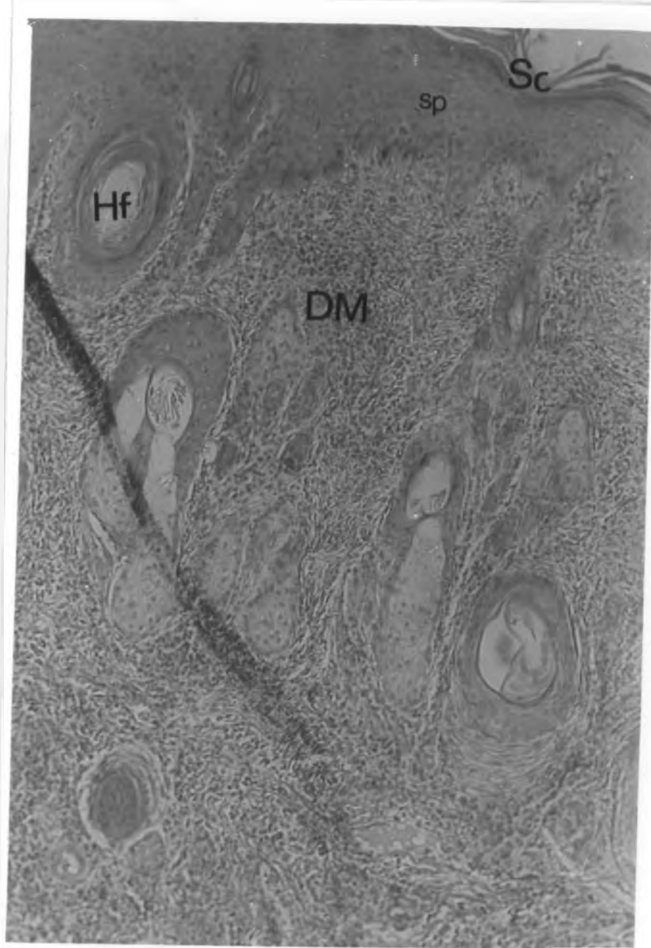


Fig.31

Diffuse infiltration with macrophages and polymorphonuclear granulocytes of the skin dermis (Dm) of a goat injected intradermally with the exotoxin of *C. pseudotuberculosis*. Note the hyperplasia of the stratum spinosum (Sp) and the hyperkeratosis of the stratum corneum (Sc). Hf = hair follicle. H & E x 100.

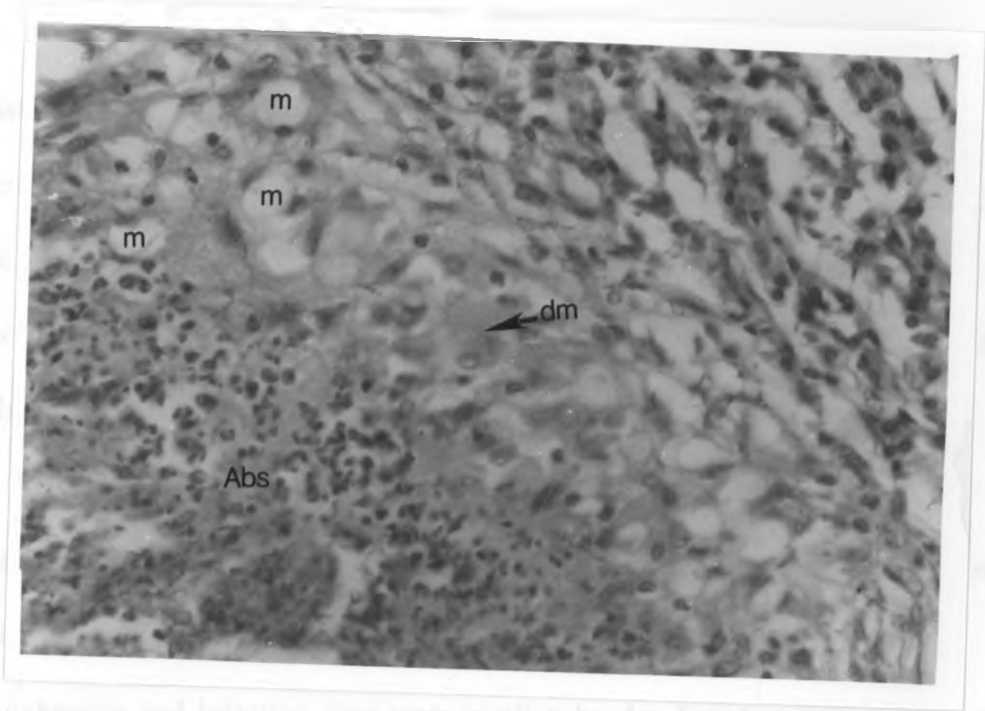


Fig. 32

Lymphnode abscessation (Abs) in a draining lymphnode of a goat injected intradermally with the exotoxin of *C. pseudotuberculosis* emulsified in incomplete Freund's adjuvant. Note the ring of macrophages at the periphery, laden with the injected material in their cytoplasm (m) and some in the process of degeneration (dm). H & E x 630.

4.5.3. Heat inactivated toxin.

Injection sites were slightly swollen by day four. This swelling subsided and was not detectable by day 10. Draining lymphnodes were not palpably enlarged at any stage of the experiment. At postmortem, lymphnodes had black zones on the cut surface and injection sites were black from the underside surface.

Histopathology.

Test and control skin sections were initially thickened due to infiltration by mononuclear cells and giant cells especially around activated charcoal particles. By day 30 and 35, no lesions were detectable. Both test and control lymphnodes showed only mild follicular hyperplasia.

4.5.4. Heat killed, formalin killed, and ether/ethanol extracted *C. pseudotuberculosis* cells

Lymphnodes and injection sites were swollen by day four but lymphnode swelling subsided by day eight. Injection sites were by this time abscessed and some were discharging purulent material. This discharging was followed by scab formation, sloughing off and healing without scar formations. At postmortem, intradermal caseous abscesses were observed in animals sacrificed early in the course of the experiment. No lymphnode abscesses were observed.

Histopathology.

Skin sections had a single confined intradermal abscess surrounded by macrophages and epithelioid cells, lymphocytes and plasma cells. Some abscesses also had a peripheral

fibroblast capsule. There was no reaction in other parts of the sections.

Lymphnode section showed only oedema and follicular hyperplasia. The pathological findings in injection sites and draining lymphnodes can be summarised in table 10.

4.5.5. Serological findings.

A summary of serological findings is given in Table 11. None of the animals injected with the lipid wax extract and with the heated toxin, seroconverted to either BAT or HIT positive. Animals injected with the potent toxin were HIT positive, but BAT negative, from day 24. Animals injected with either heat killed, formalin-killed, or ether/ethanol extracted cells developed positive BAT titres. The titres were however only marginally positive in animals injected with heat-killed cells (titre 2.1).

Animals injected with heat-killed organisms were negative for HIT while those injected with formalin-killed cells had a low titre (0.3). Those infected with ether/ethanol extracted cells had a positive titre (0.6).

Table 10.

Summary of postmortem findings in injection sites and draining lymphnodes of goats injected intradermally with different fractions and preparations of *C. pseudotuberculosis*.

Pathological Findings.

Injection material	Injection sites.	Draining lymphnodes.	
1. Waxy lipid	1.	Abscessation	1. Necrosis
	2.	Necrosis	2. Fibrosis
	3.	Ulceration	3. Abscessation
2. Exotoxin	1.	Oedema	1. Abscessation
	2.	Abscessation	2. Necrosis
	3.	Necrosis	
	4.	Ulceration	
3. Heated exotoxin		None	None
4. Heat- killed cells	1.	Abscessation	None
	2.	Scab formation	
5. Formalin- killed cells	1.	Abscessation	None
	2.	Scab formation	
6. Ether/Ethanol washed cells	1.	Abscessation	None
	2.	Scab formation	

Table 11: BAT and HIT titres in goats injected with different fractions and preparations of *C.pseudotuberculosis*.

GOAT NO.	INJECTION MATERIAL	DAY SACRIFICED	BAT		HIT	
			O	T	O	T
78	Lipid wax	6	1.2	0.9	-	-
76		9	0.9	0.9	-	-
77		24	1.8	1.5	-	-
75		30	0.9	0.9	-	-
53		35	1.2	1.2	-	-
55		40	1.2	0.9	-	-
80	Toxin	9	0.9	0.9	-	-
79		24	0.9	0.9	-	0.6
56		30	1.2	1.2	-	0.6
57		35	1.2	1.2	-	0.6
82	Heated Toxin	9	0.9	1.5	-	-
81		24	0.9	0.9	-	-
58		30	1.2	0.9	-	-
59		35	0.9	0.9	-	-
83	Formalin killed cells	24	1.2	3.3	-	0.3
84		30	0.9	3.0	-	0.3
45	Heat-killed Cells	12	1.8	2.1	-	-
60		24	0.9	2.1	-	-
61		36	0.9	1.8	-	-
54	Ether/ethanol extracted cells	18	1.5	3.3	-	-
85		21	0.9	3.0	-	0.6
26		36	0.9	2.7	-	0.6

5.0 DISCUSSION.

5.1. Natural Caseous lymphadenitis.

The commonest site of caseous abscessation in both sheep and goats species was the prescapular lymphnodes. In other parts of the world especially the United States, the lymphnodes of the head region are reportedly the commonest sites of infection (Ashfaq and Campbell, 1979; Burrell, 1981; Batey *et al.*, 1986; Brown and Olander, 1987). The route of infection is thought to be the buccal mucosae, that has been lacerated by rough feed such as hay (Ashfaq and Campbell, 1979). The majority of goats examined in the present work came from arid and semi-arid regions with vegetation comprised mainly of thorny bushes. Superficial scratches inflicted on neck and shoulders during browsing would therefore be the main route of infection, with subsequent high infection rate of the superficial body lymphnodes. Lacerations of the buccal mucosae by thorny bushes while browsing are not likely to be a route of infection unless animals subsequently feed on contaminated feed.

Apart from lymphnodes, lesions were also observed in the subcutaneous tissue and a lesion was observed in the lung of a sheep. However, the disseminated form of the disease, with involvement of visceral lymphnodes and organs was not observed.

The causative agent of CLA, *Corynebacterium pseudotuberculosis* was isolated from the majority of caseous lesions (79.4%), either in pure or in mixed cultures. Other pyogenic and non-pyogenic organism were isolated from 11.1% of the lesions. These other organisms were presumed to be secondary invaders of the lesions, or were contaminants during sampling and isolation. Apart from *C. pseudotuberculosis*, other pyogenic organism such as *Staphylococcus aureus* and *Actinomyces (Corynebacterium) pyogenes* have experimentally

been shown to cause abscesses in superficial lymphnodes of sheep (Richard *et al.*, 1979). These organisms are however unlikely to cause the caseous granulomatous lesions caused by *C. pseudotuberculosis* (Jubb *et al.*, 1985). A condition of subcutaneous abscessation located close to lymphnodes in sheep (Morel's disease) caused by a Gram positive *Micrococcus* has been reported in Kenya (Shirlaw and Ashford, 1962). No such organism was however isolated from the subcutaneous abscesses in the present investigations.

The pathological manifestation of the lesions was that of unitised capsulated granulomas with necrotic caseous centres. The additional feature of necrosis, in addition to the different cellular compositions qualifies the granuloma into the category of complex granulomas (Adams, 1976). Calcification of lesions is considered rare in goats (Batey *et al.*, 1986) but was frequently observed in the present investigation. The concentric onion-like arrangement of the caseous material was however, not observed in this species. This was in agreement with the observation of Brown and Olander,(1987), that this feature constitutes a major distinction between caprine and ovine CLA. The caseous material, comprising the necrotic centre of the lesions, was found to be composed mainly of dead mononuclear cells as opposed to polymorphonuclear glanulocytes (PMN). This feature is probably responsible for the caseous consistency and the creamy colour of the material. It was also an indication that mononuclear cells (macrophages), are the main host defence cells against the organism. The initial confinement of the spread of the lesions appear to be effected by the epithelioid cells, (derived from macrophages), which are ringed round the necrotic centre. Further confinement of the lesion is effeted by the peripheral fibrous capsule.

Granulomas persist only as long as the inciting agent is present (Spector and

Mariano, 1975; Adams, 1976). Only those microorganisms resistant to phagocytic degradation can produce granulomas (Nelson, 1969; Spector *et al.*, 1970). In CLA, the causative agent would not survive indefinitely in the capsulated lesions. With no viable microorganisms, (9.5% of abscesses were found to be sterile), it is expected that resolution of the lesions would take place. It has been observed that among infected animals, antibody to exotoxin is not necessarily confined to those with lesions (Zaki and Abdel-Hamid, 1971; Nairn *et al.*, 1977; Shigidi, 1978; Brown *et al.*, 1986b). This suggests that some lesions undergo resolution during the early stages of development (Batey, 1986b).

Evidence of resolution of an abscess was observed in the present study. Resolution occurred by formation of granulation tissue. Jolly (1965b), observed that experimentally induced lesions in mice were resolved by specialised macrophages. Lymphnode lesions can also rupture and discharge through the skin (Addo and Eid, 1978) and the lymphnode may then heal by granulation tissue formation.

In the present investigation, caseous lymphadenitis in sheep and goats under nomadic conditions was found to have a prevalence of 1.6% and 7.1% respectively. The prevalence in goats was similar to those reported in other parts of the world but in sheep it was much lower (Ashfaq and Campbell, 1979; Hein and Cargill, 1981; Batey *et al.*, 1986).

5.2. Routes of infection.

The four methods of infection were selected while considering that the natural disease usually involves superficial lymphnodes, from where it can then disseminate to involve deep seated and visceral lymphnodes as well as visceral organs. It is wholly accepted that infection

takes place through skin wounds of varying depths (Nairn and Robertson, 1974; Nairn *et al.*, 1977; Nagy, 1976; Addo and Eid, 1978). The results indicated that the disease in goats can be acquired through introduction of infectious material either subcutaneously, intradermally, or by contact with scarified skin. Infection through intact skin appeared unlikely.

Introduction of infectious material subcutaneously produced the most severe clinical symptoms. The animals were febrile, inappetent and had transient lameness. This severe reaction has been reported by others (Holstad and Teige, 1988b; Pepin *et al.*, 1988). Abdel-Hamid, (1973) and Gameel and Tatour, (1974), observed deaths in goats and sheep respectively when large doses of the organism were injected subcutaneously while small doses produced fever, local abscessation and swelling of regional lymphnodes.

In the present study, swelling and abscessation of subcutaneous injection sites was not immediately accompanied by swelling of regional lymphnodes. Severe inflammatory reaction appeared rapidly at the site, isolating the focus of infection. This was possibly responsible for the delay of the spread of the organism into the regional lymphnodes. Cameron (1972) observed that subcutaneous injection of *C.pseudotuberculosis* in sheep resulted in extensive subcutaneous abscessation but rarely involving the regional lymphnodes.

Introduction of infectious material intradermally produced the most rapid swelling of the regional lymphnode (2 days). Results elsewhere (see incubation period studies) however indicate that abscessation did not occur concurrently with swelling of the lymphnodes, as the latter was mainly due to oedema. Intradermal infection also produced abscessation at injection sites which however, discharged and healed rapidly leaving no trace of infection. Only one goat (No.5) which died three weeks post-infection had abscesses at the infection

sites while another goat(No.6), in addition to abscessation of the regional lymphnodes, developed a subcutaneous abscess close to the prescapular lymphnode. The abscess presumably originated from an afferent lymphatic vessel.

Animals infected on scarified skin developed a mild swelling of infection sites followed by scab formation and healing. Both regional lymphnodes were abscessed at postmortem in all animals. Nairn and Robertson, (1974), failed to induce lymphnode abscessation through penetrating surgical wounds due to excessive scab formation. This apparent contrast may also be due to the fact that Nairn and Robertson (1974), used broth cultures of the organism for infection as opposed to abscess material in the present study. The smeared abscess material remains attached to the site of infection, favouring retention of moisture and nutrients and thus ensuring continued viability of the microorganism (Abdel-Hamid and Zaki, 1972). Nagy, (1976), also reported limited success in reproducing the disease by smearing fresh wounds with abscess material.

Animals infected by smearing infectious material on intact shorn skin developed no lesions in the skin and the draining lymphnodes, contrary to reports by Shigidi, (1979), and Nairn and Roberson,(1974). This method of transmission would require that the organism crosses the cutaneous barrier. Transmission through intact shorn skin is reportedly enhanced by spraying the area with dipping fluid or a suitable defatting agent. In the present work, the shaved sites were swabbed with surgical spirit, a treatment that would have a defatting effect. In absence of abscessation of the lymphnodes it was concluded that transmission through intact skin as reported by others possibly took place through minute shaving cuts.

Haematological findings in all infected groups indicated that the only significant change was a leucocytosis, characterised by a neutrophilia and a subsequent increase in the percentage neutrophil count. The response was more pronounced in groups infected subcutaneously and intradermally and less pronounced in the group infected through scarified skin. There was no significant change in the group infected through intact skin. There was no significant change in other parameters (Hb, PCV, total plasma protein concentration). Holstad and Teige, (1988b) in addition to a leucocytosis, also observed a decrease in haemoglobin and haematocrit levels in goats infected subcutaneously. Gameel and Tatour, (1974), infected sheep subcutaneously and observed a decrease in red blood cell count, Hb and PCV values. In chronically infected goats, Desiderio *et al.*, (1979), observed a significantly higher total serum protein values than in normal goats, due to increase in gamma-globulins. Plasma proteins were found to increase and to decrease in sheep infected subcutaneously with a high and a low dose respectively (Gameel and Tatour, 1974). In the present study, the value of the haematocrit (PCV), haemoglobin and total plasma protein concentration dropped and remained low throughout the experiment period in all groups including the control group. There was no statistically significant difference in the weekly means of the values between the groups. It was therefore concluded that a uniform factor was responsible for the observed decrease. The unnatural confinement and the change of feed from shrubs to hay was the probable cause. The initial increase in total plasma protein concentration (in all groups) may have been due to dehydration.

The three successful routes of infection produced abscessation of only the superficial lymphnodes. There was no spread to the other lymphnodes or internal organs as reported by Gameel and Tatour, (1974); Holstad and Teige, (1988b); and Pepin *et al.*, (1988). It is

possible that the animals used in the present work had a degree of resistance to infection that confined the infection to the infection site and the regional lymphnode.

Caseous lymphadenitis induced by intradermal injection and by skin scarification appeared more typical of the natural disease as it depicted no acute clinical symptoms like those induced by subcutaneous injection. Although signs of general ill health have been reported in animals during the period immediately following the first observation of caseous lymphadenitis in a herd (Holstad and Teige, 1988b), the disease is generally known to take a chronic suppurative course free of acute symptoms such as fever, inappetence, and lameness. The acute clinical symptoms, in addition to the extensive subcutaneous and muscular abscessation in goats injected subcutaneously indicated that this is an unlikely route of natural infection.

5.3. The dose of infection.

The results in the present study indicated that a dose of as low as 100 cfu of *Corynebacterium pseudotuberculosis* can induce CLA in goats when introduced intradermally. Other reports (Ashfaq and Campbell, 1980; Pepin *et al.*, 1988; Holstad and Teige, 1988b) indicate that doses of 1×10^6 cfu are required for experimental induction of CLA. With decrease in the dose of infection, however, especially below 5×10^2 cfu the number of infected lymphnodes observed decreased. At doses of 50 cfu, no CLA lesions were observed. Maki *et al.*, (1985) observed that only about half of the sheep infected with less than 1×10^4 cfu of *C.pseudotuberculosis* developed CLA lesions. In mice, Cameron and Fuls, (1973), found that doses less than 1×10^5 cfu were rarely fatal to mice infected intravenously.

The dose of an organism required to set up an infection is dependent on factors such as the degree of pathogenicity of the organism, the route of infection and the resistance of the host to infection. *C.pseudotuberculosis* produces an exotoxin which acts as a permeability factor (Jolly, 1965a; Carne and Onon, 1978). The permeability factor enhances the spread of the organism from the site of infection to the draining lymphnode. The organism is also a facultative intracellular parasite (Jolly, 1965c; Hard, 1972; Tashjian and Campbell, 1983) and is able to survive and multiply within the host's macrophages (Batey, 1986b). The spreading factor and the resistance to phagocytic degradation would enable a relatively low dose of the organism to establish CLA lesions.

The sources of natural infection are contaminated fomites such as fencing posts, pen walls and floors, soil, straw and faeces or from direct contamination of animals by ruptured abscesses. The numbers of the organism available for infection from these sources is unlikely to be high, with the exception of the direct contamination. The period of viability of the organism in the fomites is also limited (Abdel-Hamid and Zaki, 1972; Augustine and Renshaw, 1986). It is therefore important that low doses of the organism be able to establish an infection.

The onset of palpable enlargement of lymphnodes and the frequency of abscessation varied with the dose of infection. Clinical swelling was detected earlier with higher doses but with lower doses it took as long as four weeks. In some cases no clinical swelling was detected at all, such as in groups infected with doses equal to or less than 5×10^2 cfu where only 3 out of 9 lymphnodes were detected as clinically swollen. Such lymphnodes, with the exception of one, were also not abscessed at postmortem. This was an indication that

infection did not necessarily lead to lymphnode abscessation. Such animals would however be detected as positive in a serological investigation. In the present results, two animals (Nos. 32 and 25) which had neither clinical swelling nor postmortem lesions, were positive in either BAT or HIT.

5.4. Incubation Period.

There is no available data on the incubation period in the literature for comparison with the present results. Ashfaq and Campbell, (1980) infected goats subcutaneously, intradermally and submucosally and determined the incubation period to be in the range of 41-147 days, calculated from the day of inoculation to the day of incising the abscesses. This method of calculation could not have been accurate since abscesses take time to ripen suitably for incising or lancing. The calculation would however be accurate in so far as determining the period after which an infected animal would start contaminating the environment and thereby transmitting the disease.

The method of sequential sacrificing of infected animals, used in the present study is an accurate method of determining the onset of the CLA lesions, at a stage when detection by either palpation or serology is not possible. The results indicate that whereas the disease is chronic in duration, it is actually subacute in development. The method also allowed observation of the sequential development of lesions, starting as an accumulation of macrophages and PMN, to progressive formation of several foci of pyogranulomatous lesions. The foci had no capsulation and the cellular contents were identifiable. The foci then coalesce, by extension, to form usually one granuloma which becomes capsulated thereby containing the spread of the infection. Internally, containment of the spread would

be aided by the zone of epithelioid cells. There was no significant difference in incubation periods between groups infected with the different doses (1×10^5 and 5×10^4 cfu) or infection methods. The two infection methods are similar in the sense that the infectious material is introduced intradermally although in different quantities and by different means. However, when increasingly low doses of the organism were used (see dose of infection) the period of onset of lymphnodes swelling varied accordingly i.e 2 days with a dose of 1×10^5 and 5×10^4 cfu, 5 days with 1×10^4 cfu, an average of 14 days with 5×10^3 cfu, 21 days with 1×10^3 cfu and 28 days with 5×10^2 cfu (Table I dose of infection). This is an indication that at low doses, the incubation period for development of caseous lesions was dependent on the dose of infection.

The incubation period of a disease is an important diagnostic and epidemiological tool, which can be used to trace the sources of infection. Caseous lymphadenitis is usually introduced into a disease-free herd by newly introduced animals. In Kenya, goat improvement centres provide facilities for hiring out males to farmers. Such males can either take back or bring in infections. Information on incubation period for CLA would therefore allow efficient tracing of newly introduced cases of infection.

5.5. The Pathogenicity of *C. pseudotuberculosis* fractions and whole- cell preparations.

In the present investigation, the two *C. pseudotuberculosis* fractions (Lipid wax and exotoxin), and the whole- cell preparations (Heat-killed, formalin-killed and ether/ethanol extracted cells), produced abscessation at the injection sites but only the lipid wax and the exotoxin produced lymphnode lesions. Heat-killed and formalin killed cells have been

reported to produce sterile intraperitoneal abscesses (Zaki, 1976). This is in agreement with results in the present study. There are however no reports of abscess formation by the lipid wax or the exotoxin.

The lipid wax and the exotoxin are thought to be the major pathogenic factors of *C. pseudotuberculosis* (Carne, 1940; Carne *et.al*, 1956; Jolly, 1965a; Hard 1969a; 1972; 1975; Zaki, 1976; Carne and Onon, 1978 ; Muckle and Gyles, 1983). The pathogenicity of the lipid wax is thought to be twofold. Firstly, the wax allows the organism to resist phagocytic degradation and so survive and multiply as an intracellular parasite (Hard, 1972). Secondly, the substance is thought to be leucocidal. Carne *et al.*, (1956) observed that leucocytes that phagocytosed the surface lipid adsorbed onto activated charcoal underwent rapid degeneration and death. Hard (1975), demonstrated that a lipid extract dissolved in paraffin oil was cytotoxic when phagocytosed by mouse macrophages. Cytotoxicity was assayed by dye exclusion, glycolytic activity and by ultrastructural morphology. The lipid is dermonecrotic when injected intradermally in Guinea pigs (Carne *et al.*, 1956) but has no evidence of general toxicity when injected intraperitoneally.

In the present study, the surface lipid of *C. pseudotuberculosis* was tested for ability to produce lesions in lymphnodes. The material, emulsified in liquid paraffin oil, and with activated charcoal was deposited intradermally. The material would presumably move into the draining lymphnode either free or within phagocytes. The former was evidenced by microscopic observation of spaces previously occupied by lipid-oil droplets in lymphnodes. The activated charcoal, in addition to binding the wax, also acted as a tracer, to show that the material moved into the draining lymphnodes. This was quite evident in both test and

control lymphnodes as the nodes had traces of black deposits.

The surface lipid produced pyogranulomatous lesions in draining lymphnodes that were similar to those produced by the live organism. No such lesions were observed in the control lymphnodes. There are no similar reports of *in vivo* lymphnode pathology produced by the surface lipid. A capsulated lung abscess was also observed in one animal. The same animal also had bilateral focal interstitial mononuclear infiltrations in the kidneys. Although it was not possible to determine whether these lesions originated from the intradermally deposited material, the lesions can be produced by entrapment of leucocytes carrying the material (Batey, 1986).

Pyogranulomatous lesions in draining lymphnodes were also reproduced by the potent extracellular toxin. Severe oedema, vascular thrombosis followed by necrosis, ulceration and sloughing off was observed at the injection sites. The oedema and thrombosis, which was attributed to the permeability action of exotoxin, was also reported by Jolly, (1965a). There are no reports however, of lesions in the draining lymphnodes. The inability of the heat treated toxin to produce lesions was an indication that the toxic factor was heat-labile.

Lymphnode lesions produced by both surface lipid and exotoxin were similar histologically. They consisted of both focal and locally extensive pyogranulomatous reactions. The reactions, consisting of degenerate macrophages and PMN surrounded by epithelioid and multinucleated giant cells were similar to the early CLA lesions, before coalescence and capsulation takes place. The ability of the extracellular toxin to cause lymphnode lesions may give a partial explanation of the mechanism of host's phagocytes destruction in the

pathogenesis of CLA. The exotoxin has the ability to damage cell membranes. Damage to the phagolysosome limiting membrane (derived from the phagocyte cell membrane) would cause leakage of the degradative enzymes into the cytoplasm. This would lead to self-destruction of the phagocyte.

The heat-killed, formalin-killed, and ether/ethanol washed organism produced lesions in injection sites but not in the draining lymphnodes. There was also none of the clinical swelling of the draining lymphnodes observed with the lipid wax and potent exotoxin. The lesions at the injection sites by the heat-killed and formalin-killed cells can be explained on the basis of the surface lipid on the cells, and those by the ether/ ethanol washed cells on the bases of exotoxin in the cells' protoplasm (Cameron and Smit, 1970). The failure by any of the three preparations to produce lymphnode lesions was an indication that the cells did not move into the draining lymphnodes. Injection sites for lipid wax and exotoxin preparations manifested a marked inflammatory reaction which was not the case with the three cell preparations. The severe inflammatory reaction must have aided the movement of the materials into the draining lymphnodes. Inflammation has been shown to increase vascular permeability and thereby increase lymph flow, prostaglandin levels and polymorphonuclear cells efferent from local lymphnodes (Johnston *et al.*, 1979). It is possible that the lipid wax content of the killed cells was not enough to induce a substantial inflammatory reaction to aid the movement of the cells into the draining lymphnodes. As such, the abscessation remained localised.

5.6. The immune response.

5.6.1. Natural caseous lymphadenitis.

From a total of 57 serum samples from animals with CLA lesions, 50 were positive in BAT (87.7%), 46 in HIT (80.7%), and 51 in either test (89.5%). The proportion of animals detected by the tests was higher when only the 45 animals from which *C. pseudotuberculosis* was isolated were considered i.e 42 in BAT (93.3%) 40 in HIT (88.9%) and 43 in either test (95.5%). This was expected since animals with viable organisms in the lesions are likely to have higher antibody levels. In the absence of viable organisms in the lesions, antibody titres would decline. *C. pseudotuberculosis* was not isolated from the four animals that were negative in either test. In two of the animals, abscesses were sterile while in the other two, other organisms were isolated. However, in neither test were negative titres confined to samples from animals from which the organism was not isolated.

Some animals that had no lesions were seropositive in either or both tests. Anderson and Nairn, (1985) and Brown *et al.*, (1986b) also found the proportion of HIT seropositive sheep and goats to be higher than the proportion of animals with abscesses. The discrepancy is attributed to either a subclinical state of infection, with no grossly visible abscesses, or a post-infection status where abscesses had healed. In the present study, there was evidence that:- (1) lesions can resolve, (2) that some doses of infections do not produce lesions, and (3) that lesions appear at least a week before antibodies can be detected. These three observations can account for the observed discrepancy in the present and in previous studies.

The present results indicated that the BAT and HIT have high sensitivity (87.7% and 80.7% respectively) and high specificity (87.9 and 97.2% respectively) in detection of natural

pseudotuberculosis. Holstad, (1986a) reported a sensitivity and specificity of 93% for each test in goats. The reported results were however without the benefit of known negative and known positive sera on the basis of postmortem and bacteriological findings. In the present results, the postmortem and bacteriological status of each animal was known.

The performance of the HIT in the present results, i.e higher specificity than sensitivity was converse to findings by Brown *et al.*, (1986b) who observed a sensitivity and specificity of 98.07% and 71.5% respectively in sheep while Anderson and Nairn, (1985) observed a 13.85% false positive rate.

5.6.2. Effect of the route of infection.

Serum titre values over a 10 week period showed that all animals, except one, infected by either the subcutaneous, the intradermal or by skin scrfaction routes had positive BAT titres by the second week post infection. Animals infected by application of infections material on intact shaved skin did not develop positive BAT titres. The difference in the route of infection in the first three groups therefore, did not influence the qualitative serological response. The findings also confirm those of Holstad and Teige, (1988b) who infected goats subcutaneously and observed BAT seropositive titres by the second week.

Most of the animals infected by either the subcutaneous, the intradermal or by the skin scarification route had positive HIT titres by the third week. This was in contrast to reports by Holstad and Teige, (1988b) who observed positive HIT titres five weeks after subcutaneous infection. In the present results the highest titres were observed in animals infected intradermally and in one of those infected subcutaneously. This was an indication that the route of infection may have an effect on the quantitative antibody response.

The BAT was found to detect antibodies one week earlier than the HIT. This was in agreement with findings of Holstad, (1986a; 1986b) and Hostad and Teige, (1988b) who found the BAT to detect both experimental and naturally infected animals earlier than the HIT.

5.6.3. Effect of dose infection.

The results indicate that antibody response is related to the dose of infection. With decrease in the dose of infection, there was both a slower rise in BAT and HIT titres and also lower maximum titres. In animals infected with doses lower than 5×10^3 cfu, only 4 out of 8 animals attained positive BAT titres and one animal was only positive between the third and fourth week. The titres were also lower than those in animals infected with doses of equal to and above 5×10^3 cfu, which were also in contrast, positive by the second week.

All animals infected with doses equal to and above 5×10^3 cfu were HIT seropositive by the third or fourth week, while those infected with lower doses were positive five weeks post infection. Two of the latter group remained seronegative throughout the experimental period i.e, those infected with doses of 100 and 50 cfu respectively. All animals that remained seronegative in either HIT, BAT or both had received infection doses of equal to or below 1×10^2 cfu. This included one animal (no. 31) which had a CLA lesion at PM, but remained BAT negative, an indication that low doses may produce CLA lesions without detectable antibody response. Maki *et al.*, (1985) observed that in lambs infected with 1×10^2 , 1×10^3 or 1×10^4 cfu, only a half showed an increase in antitoxin ELISA titres. Low challenge doses of equal to or below 1×10^4 cfu produced clinically evident lesions and serological response only in half of the animals, and after one month.

These results therefore indicate that serological response, in terms of the rate and extent is affected by the dose of infection. The higher the dose, the faster and higher the serological response.

5.6.4. Incubation period and serological response.

The appearance of CLA lesions did not coincide with appearance of seropositive BAT or HIT titres. Although caseous lesions appeared by days 8-9 in the three groups of animals, seropositivity was not observed until 15-17 days in BAT and 20-25 in HIT .

It has been observed that some naturally infected animals with lesions have no detectable antibody titres , even when the causative agent can be isolated from the CLA lesions. Brown *et al.*, (1986b) observed a 2% failure rate of the HIT to detect infected sheep and goats. Holstad, (1986b) observed that the BAT and HIT each failed to detect 7% of infected goats. In the present study, 7 out of 57 (12.3%) and 11 out of 57 (19.3%) naturally infected sheep and goats were seronegative in BAT and HIT respectively. Of these, three and five animals respectively had viable *C. pseudotuberculosis* in the lesions. The seronegative reactions can partially be explained by the fact that the BAT and HIT titres are seropositive at about one week and two weeks respectively after development of lesions. Maki *et al.*, (1985) found the HIT and the antitoxin ELISA to detect infected sheep 60 - 70 Days and 30 - 60 days respectively after experimental infection.

The serological results in naturally infected animals and in animals used in the incubation period experiment were in agreement that the HIT is likely to "miss" more infected animals than the BAT. The overall implication of these results is that the BAT and the HIT tests are of little value in detection of CLA lesions, during the period 1-2 weeks

after development of lesions.

One experimental animal in group 2 (Goat No. 51) had positive BAT and HIT titres by one week post infection, although the animal was seronegative on pre-infection testing. Postmortem findings in the animal had revealed only a microscopic lesion in one of the test lymphnodes. The lesion was characterised mostly by fibrosis, an indication of a previous infection, which may have resulted in resolution of the lesion. The animal resisted infection (by a dose of 10^5 cfu), and also had a faster antibody response. This was an indication that animals previously infected by *C. pseudotuberculosis* may resist subsequent challenge. The kinetics of the serological response indicated a typical anamnestic response. Brown *et al.*, (1986a) vaccinated goats with a toxoid vaccine and detected HIT titres one week after intradermal challenge with live *C.pseudotuberculosis*.

5.6.5. Serological response to fractions and whole- cell preparations of *C. pseudotuberculosis*.

Antibodies were not detectable by either BAT or HIT tests in sera from animals infected with the surface lipid of *C. pseudotuberculosis*. This was in agreement with report by Maki *et al.*, (1985) who found that the lipid had no antigenic activity in ELISA immunoassays. Extraction of the lipid with ether/ethanol did not alter the immunogenicity of bacterial cells in mice (Cameron and Fuls, 1973). Thus, although the lipid is toxic to host's leucocytes, it does not seem to provoke any antibody response.

The lipid does not therefore play a role in humoral resistance against the organism. Heat inactivated toxin elicited no antitoxin response but the potent toxin did. Similarly, the phospholipase enzymatic activity of exotoxin has been found to be heat-labile (Goel and

Singh, 1972; Kuria, 1984). The results of the present work indicate that in addition to loss of enzymatic activity, heat also destroys the antigenicity of *C. pseudotuberculosis* exotoxin. No HIT titres were detected in animals infected with heat-killed cells.

Antibodies to heat-killed, formalin-killed and ether/ ethanol extracted cells were detected by BAT. Titres to ether/ethanol extracted cells were significantly higher whereas those to heat-treated cells were only marginally positive. Holstad *et al.*, (1989) detected no BAT antibodies in goats immunised subcutaneously with formalin-killed cells. However, subsequent challenge showed that the vaccinated animals had BAT titres detectable one week earlier than non-vaccinated ones, an indication that the killed vaccine had elicited some B-cell activity. The high BAT titres observed in animals infected with ether/ethanol extracted cells confirm observations by Cameron and Fuls, (1973) that extraction of cells with ether/ethanol does not alter the immunogenicity of *C. pseudotuberculosis* cells. HIT titres were also detectable in animals infected with formalin-killed and also ether/ethanol extracted cells. This response was attributed to intracellularly located exotoxin (Cameron and Smit, 1970) whose antigenicity was not affected by either treatment. Titres in animals infected with ether/ethanol extracted cells were however higher. Carne, (1956) reported that light extraction of *C. pseudotuberculosis* cells with petrol/ether did not alter the viability of the cells. The viability of the cells was not however retained after 18 hrs of extraction with ether/ethanol. This was supported by the fact that abscesses at injection sites were sterile and no CLA lesions were observed. The BAT and HIT titres in animals infected with the extracted cells were higher than those in animals infected with other cell preparations. This was an indication that inactivation of *C. pseudotuberculosis* by ether/ethanol extraction preserved the antigenicity better than either heat or formalin treatment. It is also possible that the removal of the surface lipid by the extraction process exposed the immunogen (epitome) better to the host's

immune system.

6. Conclusions.

The following are the main conclusions from the present study:-

- 6.1. Caseous lymphadenitis in Kenya is an important disease in goats (prevalence 7.1%) but not in sheep (prevalence 1.8%).
- 6.2. Abscesses in CLA lesions are composed of mainly dead mononuclear cells as opposed to dead polymorphonuclear granulocytes. This may explain the caseous, and not fluidy nature of the pus.
- 6.3. Serological evaluation indicated that the BAT and the HIT tests have high sensitivity and specificity in detecting naturally infected and non-infected animals.
- 6.4. CLA can be induced in goats through either subcutaneous, intradermal injection or by smearing caseous abscess material on scarified skin. Infection through intact skin was found to be unlikely.
- 6.5. Infection through the intradermal and the skin scarification routes produced CLA that was clinically more typical of the natural disease.
- 6.6. The main haematological changes associated with *C. pseudotuberculosis* infection is a leucocytosis characterised by a neutrophilia.
- 6.7. Antibodies to *C. pseudotuberculosis* are detectable two weeks post-infection.
- 6.8. The minimum dose for induction of CLA in goats through the intradermal route is around 1×10^2 cfu of *C. pseudotuberculosis*.
- 6.9. Animals infected with low doses may develop CLA lesions but without production of detectable antibody titres. Such animals may therefore be detected as "not infected" serologically. However, since the causative agent is a facultative intracellular parasite,

a delayed skin hypersensitivity test (DHS), could be more accurate in detecting such animals.

- 6.10. The incubation period for development of CLA lesions in goats is around 8-9 days. CLA is therefore subacute in development.
- 6.11. Since antibodies are not detectable for at least two weeks post infection, for a period of one week after development of lesions animals will be detected as serologically negative. A cell mediated immune response test such as the DHS may however be able to detect infections earlier.
- 6.12. The surface lipid and the exotoxin of *C. pseudotuberculosis* can independently induce caseous lesions in goat lymph nodes and may complement one another in formation of CLA lesions.
- 6.13. The surface lipid is not antigenic and may therefore have no role in humoral resistance against *C. pseudotuberculosis* infection.
- 6.14. *C. pseudotuberculosis* cells extracted with ether/ethanol produced a better antibody response (to both surface antigens and the exotoxin) than cells inactivated by either heat or formalin.
- 6.15. Although the presence of specific antibodies cannot be equated to immunity, it is possible that inactivation of the organism by an organic solvent such as ether/ ethanol extraction may be a better approach to preparation of vaccines against CLA than either formalin or heat inactivation.

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