The Role of Ecotourism in Environmental Management: 
A Case Study of Southern Laikipia Plateau, Laikipia District

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in Environmental Planning and Management in the Department of Geography, University of Nairobi

University of Nairobi
September 2004
DECLARATION

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

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This Project has been submitted for submission with our approval as the University Supervisors.

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DATE........................................21/3/05
DEDICATION

This work is dedicated to my late father Johanna Kamithi Nganga
and to my mother Beatrice Wamaitha Kamithi. Also to my family
combination of Muthoni, Muriithi, Mwangi, Wamaitha, and my beloved
wife Annie Lillian.
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Glory is to God Almighty for giving me the heath, intellect and the time and other resources for the completion of this piece of work.

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However, I take full responsibility for any errors found in this Project Paper.
Ecotourism is a more synergetic approach to tourism that tends to bind the tourist, local community and the environment. Tourists are people travelling and staying at a place for 24 hours or more and for various reasons and purposes. Tourists could either be Local or International.

The study aims at assessing the actual role of ecotourism in the environmental conservation in the southern Laikipia plateau and more specifically in Laikipia District, which covers about 9000 square kilometres and lies between latitudes 0° 18' south and 0° 51' north and longitudes 36° 11' and 37° 24' east. The fragile ecosystem of Laikipia district could benefit from ecotourism due to its holistic nature. Though many researches have been carried out on the subject of tourism, none has narrowed to ecotourism and more so on its effects on environmental management in this area.

This study could open up the prospects of wildlife farming as a business and development of community owned tourism facilities by teaming up of small holders, ranchers and investors. This could add up and improve on the current agricultural and pastoral livelihoods. The major objective of the study is to restate the extent of ecotourism and its earnings in relation to agricultural earnings, analyse the human wildlife conflict, including charcoal burning and other inter-industry linkages.

The study has made assumptions to the effect that human-wildlife conflict would be reduced if land is set aside for wildlife and same used for tourism; that with the setting aside of such land and opening up of the wildlife corridors, the abundance of wildlife would be realised and investors would be willing to invest in eco-lodges.
and other such facilities, and with proper planning the hostile climate would be turned into assets in promotion of ecotourism leading to eventual economic growth.

In order to achieve the above assumptions, study was undertaken which involved extensive travelling of the area, holding interviews, photographing various scenes and general observation. Smallholder parcels of land averaged 5 acres, which were found to be inadequate for any profitable and sustainable development in this area.

It was realized that the smallholders, the pastoralists and the ranchers could contribute land and other resources for development of ecotourism facilities in the area. This could lead to better water harvesting, decreased charcoal burning, development of infrastructures like schools and other community facilities, better communication, improved human welfare and enhanced environmental conservation.

It is recommended that development of eco-lodges, opening up of wildlife corridors; reduction of charcoal burning and sand harvesting should be adopted. Teaching of environmental education should also be introduced as well as its application in all social, cultural and economic activities of the people.
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<td>ADC</td>
<td>Agricultural Development Corporation</td>
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<td>ASALS</td>
<td>Arid and Semi-arid Lands</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>KWS</td>
<td>Kenya Wildlife Services</td>
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<td>LWF</td>
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<td>UNEP</td>
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<td>WTO</td>
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<td>CETRAD</td>
<td>Centre for Training and Integrated Research in ASAL Development</td>
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Definitions

Environment - That which surrounds us in totality including plants, animals and other ecosystems including their locality, water and the atmosphere.

Conservation - The process of keeping the ecosystem free from destruction and preserving it for future generations through proper upkeep, maintenance and management procedures.

Climate - The heat, the coolness, the rainfall or drought or generally the temperature or type of weather of a particular place measured over a long period of time normally above 40 years.
CHAPTER 1
INTRODUCTION

Ecotourism or ecological tourism is an insightful, mindful and participatory travel experience to natural and cultural environments, assisting the well being of the local cultures and environments for future generations. It produces viable economic opportunities for the host areas. It includes a more synergistic approach that includes the tourist, local villages and the environments.

In its holistic nature, ecotourism demands that those who implement and participate in ecotourism activities should follow the following principles:

- minimize impact;
- build environmental and cultural awareness and respect;
- provide positive experiences for both visitors and hosts;
- provide direct financial benefits and empowerment for local people;
- raise sensitivity to host countries political, environmental and social climate;
- support international human rights and labour agreements.

Ecotourism being a specialized form of tourism, has potential for creating jobs, combating poverty and simultaneously, protecting the natural and cultural environment. That is why in April 1995, a World Conference on Sustainable Tourism held in Lanzarote Island and hosted by the World Tourism Organization, adopted a Charter asserting that tourism development should be based on sustainability criteria. It must be ecologically sound in the long term, economically
viable, as well as ethically and socially equitable for the local communities. The Charter further
goes on to say that protected areas cannot long co-exist with communities that are hostile to
them. The local people are important stakeholders with whom managers of protected areas must
seek to incorporate in their management. Their approach should always be participatory.

Tourism industry must however take nature into account as its sustainability depends on the fair
distribution of its economic and social benefits as well as care for the environment. The
challenge is to convince decision makers that, like all other human activities, tourism cannot
continue to grow unless they consider the negative impacts it may have on nature’s life
supporting systems. That the ecological processes that form the climate, clean the air and water,
regulate water flows, recycle essential elements such as nitrogen and oxygen, create and
regenerate soil and generally keep the planet fit for life should always be considered.

We however need to convince governments and decision makers at all levels, as well as the
general public and particularly deprived communities that ecotourism is not an elitist venture and
with awareness and proper planning it is affordable. It is also sustainable as it takes into
consideration good environmental management.

Ecotourism market is not dominated by comparative advantage, exclusively driven by economies
of scale, patented technology and low wages. Instead, natural and cultural features, knowledge,
the social environment and product differentiation drive it. All these give rise to their own
market niche. Ecotourism however cannot be practiced in isolation. Its success depends on
blending with other developmental aspects of environmental conservation, economic
development in agriculture and industry in our country.
STATEMENT OF THE RESEARCH PROBLEM

This study aims at achieving higher levels of environmental conservation by application of ecotourism in the southern Laikipia plateau. This would be in line with meeting the demands of an increasing population amidst diminishing resources in an expansive semi-arid area. This is mainly because following the attainment of independence in 1963, there was an influx of people into Laikipia District. These were people from the neighbouring districts who had formed themselves into land buying companies. After acquiring the large-scale farms, the shareholders subdivided them into smallholdings, which were quickly turned into agricultural usage. The low mountain slopes of the plateau have undergone very rapid human population growth with an annual growth rate of up to 7 – 8% (Wiesman, 1998).

These new settlers are mainly from the neighbouring high potential areas and have a tendency of practicing agricultural systems that they used in their original areas. Unfortunately, these systems are not suitable in the new environment because the climate, the soils and the ecological features in general are different.

The tremendous increase in human population has put excessive pressure in the natural resources that has led to conflicts because supply and demand of resources cannot balance with the ecological situation. A case in point is the decreasing water availability (for) from the lower mountains slopes downward to the plateau, rainfall decreases while water needed by the lowland ecosystems lead to a growing water deficit with increasing distances from the mountains (Liniger et al, 1998 D)

Besides the soils and climatic factors, overall land utilization in Laikipia District has a major role to play. The white farmers or ranchers who occupy more than 50% of the total land area and who in the past concentrated in agricultural and livestock farming have turned to partial wildlife farming. This is leading to frequent cases of human wildlife conflict. Notable also in the factor...
that most of the smallholder farmers are located in the midst of the large farmers. They obstruct wildlife corridors and this results into damage to property and loss of human life.

There is yet the problem of varying rainfall patterns with such unpredictability that it is difficult to plan. The occasional concentration of heavy rains during a short period of time calls for improved water and soil conservation and aggressive and innovative water harvesting measures.

At the same time direct evaporation loss from exposed soil surfaces is very high, at 40 – 60% of the amount of rainfall for cropland in the lower mountain slopes and the highland plateau (Liniger et al. 1998 a). This trend of unproductive loss could be reduced through proper agricultural methods. The dry climate also leads to high evaporation rates in the lowlands. This results in more water losses in open water dams and irrigation projects.

Diurnal temperature ranges are large which are limiting factors on utilization of natural resources as this affects plant growth especially crops. Besides, the mountain slopes (Mt. Kenya) have low temperature especially reported in the upper lower mountain slopes. Here, frost damage to plants is common. Drought-tolerant crops and fruits do not grow well in the highland plateau due to low night temperatures.

There is also the serious issue of pastoralists herding their cattle upstream in pursuit of water from the rivers that are gradually drying out. This is because most of the rivers are becoming seasonal due to the increasing adverse climatic changes and accelerated abstractions by farmers for irrigation. Most of these pastoralists are armed and their livestock cause heavy damage on agricultural products and also to other developments.

High population growth and migration from neighbouring districts have led to very high populations in the arable areas of the district. This is leading to demand for high food
production, which is calling for increased irrigation. Ignorance and poverty are contributing factors to increased charcoal burning, which is leading to accelerated desertification and further destruction of the environment.

On the other hand, local communities have the most at stake and therefore, the most to lose in the emerging international ecotourism market place. As globalization makes local economic control increasingly difficult, ecotourism seeks to reverse this trend by stressing those local business owners and local communities must be vitally involved. Opportunities to involve local communities in tourism have attracted attention and raised many expectations, but the risks are great unless proper preparations are made. Local people must be informed in advance of the possible consequences of tourism development, and they must formally consent to such development in their areas.

In several parts of the world, capacity building for sustainable development has become a key environmental issue. Few countries have actually drawn up comprehensive environmental management plans. Each country faces different issues, depending on its individual history like available resources, local circumstances and infrastructural development. International collaboration with development partners is increasingly seen as a promising way forward.

The environmental action plan deals with a wider range of issues, including development of heritage sites and green spaces, improvement of tourism infrastructure and enhancement of public health among others. Many governments have formed air pollution advisory committees and waste managements is being improved by providing new waste collection and disposal facilities, including sites for composting organic waste and limited incineration.

Development of ecotourism in environmental management has been a key challenge in most developing countries. In its entirety, ecotourism should contribute to the conservation of improvement of natural physical features and to the sustainable development of adjacent areas and communities.
In line with this, physical planning and design of ecotourism facilities have not been developed in a manner that avoids or minimizes any negative impact on natural and the cultural environment.

The Polluter Pays Principle, which states that the producer should meet the cost of all externalities has not been practiced efficiently in general tourism. However it should be remembered that payment (under PPP) does not help if the polluter has already destroyed the resource. Many tourist facilities are nothing but money-minting mills. The introduction of ecotourism is but a step in changing all that. This is particularly important in ASALs where any form of pollution has unparalleled destruction both in the short and in the long term.

Besides, the semi-arid plateau has insufficient soil moisture. This leads to excessive evaporation while clearing of forests and other ground cover on the mountain slopes and the gazetted forests has reduced water flows and particularly during the dry seasons. This is further worsened by the heavy cost of dam construction which can only be done by rich companies and leaves out the common farmer to the vagaries of the weather.

On the communal grazing lands of the plateau as well as the lowlands, the main challenge is the improvement of the vegetation (mainly grass) cover in order to increase production and reduce soil degradation (Liniger and Thomas, 1998). For the lowlands, the main problem is how to find a management system and make an agreement with the upstream users to guarantee minimum flow during the dry season.

Abstractions continue increasing by the day and this is not matched with corresponding increased rainfall. This has led to pastoralists, livestock and wildlife dependent on this water being forced to move upstream.

All these factors, which range from increased population, subdivision of large farms into unproductive smallholdings, introduction of unfavourable farming methods, poor soils and unpredictable climate lead us to some questions:
- What effects does the increased immigrant population in Southern Laikipia have on the environment and how would their methods of livelihoods be compatible with the sustenance of the ecological systems?
- Could the increasing human-wildlife conflict be reduced by adaptation of ecotourism and the same be extended to improve on the economic, social and cultural benefits of the residents?
LITERATURE REVIEW

The subject of ecotourism is just about 10 years old and not much has been written on it. However, good research has been done on the subject by a couple of distinguished researchers and authors.

Ecotourism however, will never be the solution for environmental conservation, but it often serves as a catalyst to other services and practices important to sustainable development. These include environment-friendly lodging, organic agriculture, the promotion of local handicrafts, and environmental education. This is well captured in the Spanish word, un ciclo virtuoso, or in English “a virtuous cycle”.

Writing in relation to the environment (Earth as Lover, Earth as Self), Buddhist scholar Joanna Macy in his practices of “Sarvodaya” (which means “everybody wakes up”) writes: “In my mind I still hear the local Sarvodaya workers, in their village meetings and district training centres. Development is not imitating the West. Development is not high cost industrial complexes, chemical fertilizers and mammoth hydroelectric dams. It is not selling your soul for unnecessary consumer items or schemes to get rich quick. Development is waking-up – waking up to our wealth and true potential as persons and as a society.” Development should involve the entire community.

Ecotourism aims at achieving greater awareness among public authorities, the private sector, the civil society and consumers, conservation of the natural resources and cultural heritage by improving the local community’s standards of living in rural areas and in surrounding national parks while encouraging better knowledge and respect of nature, indigenous cultures and their diversity.

Promoting a sustainable development in the areas where it is practiced while disseminating methods and techniques for the planning, management, regulation and monitoring of ecotourism to guarantee its long term sustainability and promoting exchange of successful experiences in the
field of ecotourism and increasing opportunities for the efficient marketing and prevention of ecotourism destinations in the international market.

Sustainable development in relation to ecotourism could be realized when ecotourism contributes to the conservation and improvement of natural areas and to the sustainable development of adjacent areas and communities when specific policies, strategies and programmes for each nation, region and areas are developed independently of other areas without copying what has been done elsewhere.

There is need for practical and effective systems of coordination between all the players involved including governments, private enterprises and the local community when planning of ecotourism includes strict criteria for territorial zoning including reserves, low and medium areas. These criteria should be enforced and respected by all parties where physical planning and design of ecotourist facilities, especially hotels and other means of accommodation and restaurants should be carried out in a manner that avoids or minimizes any negative impact they may have upon the natural and cultural environment. Building material, architectural styles, furniture e.t.c should ideally be local with low pollution energy resources.

Means of transport and communication to be used in ecotourism areas should be low contaminate. Sports involving noisy or highly polluting means of transport should be prohibited in these areas.

Appropriate legal and institutional mechanisms should be established to facilitate and make effective the orderly participation of the local communities in the entire ecotourism process while institutional, financial, fiscal or other mechanisms should also be established to ensure that a significant proportion of the income generated from ecotourism remains with the local community or serves conservation purposes.

All those concerned with the ecotourism business must be aware of the costs of mitigating any possible negative impacts and such costs must be incorporated in the pre-investment cost benefit analysis of any ecotourism project.
We cannot exhaust any study in ecotourism without a specific mention of tourism. Tourism is one of the world’s largest industries and has been growing fast contributing to 11% of the global gross domestic product. It contributes to one of the major migratory movements in modern society with about 700 million international travellers in 2001 and is expected to reach 1 billion by 2010 (WTO, 2000). It employs 200 million people, generates about US$ 3.6 trillion in economic activity and accounts for one in every 12 jobs worldwide. Its main negative aspects however are that it possesses a significant threat to cultural and biological diversity and that it has been powered mainly by fossil fuels, which come with an increasing environmental cost which can ultimately threaten the health of the industry.

More and more people are interested in exploring new and faraway destinations and cultures. Ecologically sensitive areas, those where natural resources are critically endangered by physical changes and which contain a great diversity and interdependence of living habitats, have been experiencing such increase in visitation which produce significant negative impacts on resources consumption, pollution and social systems. It can be compared in its delirious impacts and environmental risks to any other major industry.

On the other hand, tourism is a unique tool for awareness building and learning for guests and hosts alike. Sensitive areas hold the main assets on which the tourism industry depends, so conservation is essential. Any changes in the component of an ecosystem will have unpredictable effects on the entire system. Sound, natural and cultural environments are its basic assets, while peace is one of it basic requirements.

Therefore the three basic principals of conservation of biological diversity, sustainable use of resources and equitable sharing of benefits among local community and indigenous people should apply.
In their book “Social, Cultural and Economic Impacts of Ecotourism,” Awuondo C. O. and Nthuku F. M., have observed that, “There exists evidence that suggests that tourism, especially wild-life based tourism reduces production in Kenya’s rangelands, where the majority of Kenya’s nomadic communities live,” (Awuondo, 1982). What the author does not seem to consider are the other factors, particularly climatic, which would not make these dry rangelands productive when put to other forms like crop farming.

It is also argued that national parks and game reserves occupy large tracts that could be agriculturally productive; that this has increased population pressure on high and medium potential land, and hence landlessness, out-migration, and spontaneous settlement problems in marginal areas (Mbithi & Barnes, 1975). The authors however seem to ignore that these game reserves are major contributors to the GDP and that tourism which relies heavily on these game reserves is only second to Tea and Coffee as a major foreign exchange earner for the country.

Wildlife-based tourism, despite its economic benefits to the nation, impinges on agricultural production in several ways. Apart from the damage done to crops, the loss to predators of domestic stock and the danger wildlife poses to human life (Migot-Adholla & Mkangi, 1982), the tourism industry uses an estimated 10% of the available land suitable for crop based production (Awuondo, 1982). The authors, however, ignored the ever-increasing element of climate changes, which is turning hitherto agricultural lands into Arid, and Semi-Arid lands.

Kenya’s agricultural potential varies quite widely. From a total of 52 million hectares of arable land, only 6.8 m. ha, constituting 13%, are considered high potential; and the remaining 42 m. ha, 81%, are classified as less potential or marginal lands (rangelands). Traditionally, population is concentrated in the high-potential areas where agriculture thrives, leading to population pressure, landlessness and out-migration to towns or to marginal areas (Mbithi & Barnes, 1975).

Against this background the setting aside of good agricultural acreage for conservation practices is seen by critics as robbing cultivators of “fertile” land. Territory that could be used for settling the landless poor and thus promoting agricultural production especially of food, which is always
in short supply in the country (Awuondo, 1982). The writer should consider the fact that without heavy capital input to enable irrigation, and considering the populations involved, allocating these lands would only extend the vicious cycle of poverty and enhanced environmental degradation. We already have such lands in North Eastern Province, which nobody occupies.

One aspect of wildlife-based tourism that so far appears to have received little attention from scholars and policy makers is its impacts on pastoral production systems in the country. Of the 24 million Kenyans estimated by the 1989 population census, about 5 m could be classified as pastoral nomads. They occupy the marginal lands, 81% of the country’s land area. The pastoral communities include the Orma and Pokomo of Tana River district, Somali of N.E. Province, Gabra, Borana and Rendille of Marsabit district, Samburu of Samburu district, Pokot of West Pokot and Baringo district, the Turkana of Turkana district, and the Maasai of Narok and Kajiado districts. The majority of these pastoral communities still lead nomadic lifestyles, migrating with their family herds in search of forage, water resources and security, and as disease control mechanism. They keep cattle, sheep, goats, donkeys, and camels. It has been estimated that these marginal lands carry 50% of Kenya’s cattle population, 60% of its sheep and goats, 75% of its donkeys and 100% of it camel population (Republic of Kenya, 1979)

Most parks are found within the borders of these lands. Wildlife therefore lives side by side with pastoralists and their domestic herds and flocks. Competition for land resources is sometimes fierce, especially in the dry seasons. Worse still, wild animals carry and spread diseases that occasionally wipe out whole herds (Wander, 1981).

Wild game provides host for ticks that transmit tick-borne diseases to the domestic stock inhabiting the same rangelands (East Coast fever- buffalo/cattle; anthrax – buffalo/cattle; Rinderpest – buffalo/cattle; camels, goats, pigs; foot and mouth disease – all ruminants/cattle, pigs, sheep; malignant catarrh – wildebeest / cattle, sheep; trypanosomiasis - nearly all wildlife / cattle, sheep, goats, camels (Pratt & Gwynne, 1977).

Tourism has mainly developed in areas where initially, land had very little value. With promotion of tourism, these hitherto barren lands started to accelerate in value. Lundberg (1972)
writes, “As the land becomes commercialized, its market value began to increase. Consequently, land started to change hands from the poor to the rich.

Commercialization leads to land parcelling, sale, population pressure and landlessness. This impacts negatively on small-scale agricultural production, as land is the major factor of production, on which the ultimate security of the peasant lies. Also, tourism attracts labour, thus robbing the peasant family of yet another crucial factor of production. Since agricultural labour demand depends upon the agricultural calendar, during peak periods a shortage of labour is reflected in crops being choked by weeds, untended gardens and harvests wasted away in the rain. The family members whose labour is available at such times get overworked, especially during periods of low-calorie supplies (Mbithi, 1974).

Evidence further suggests that this clique of powerful landowners is not entirely local but includes foreigners in the tourist industry. The land grabbing and hoarding mentality generates social conflicts as evidenced by perennial complaints in the local press and parliamentary debates touching on land ownership (Migot – Adolla et al 1982). The writer should have touched on many problems that keep cropping up due to lack of a clear land policy in the country.

Universally, tourism has been blamed for a number of ills. The literature suggests that tourism undermines cultural and social standards of behaviour (Lea, 1988:7). In certain instances, it is claimed that tourism leads to “.... an increasingly matriarchal family” due to the growth of women’s economic power by virtue of their employment in tourist hotels. On another scale, tourism results in “changes in local consumption patterns” which “can exacerbate the economic situation by seeking more imports” (Lea, 1988: 224 – 225).

Local inhabitants lose their dignity by dancing to half clothed tourists (Lea, 1988: 230). Lundberg (1972: 145) records evidence that suggests that tourism could be blamed for the spread of diseases such as ulcers and HIV/ AIDS.

The infusion of groups of tourists into outlying areas disrupts the traditional cultures of the local people. Construction of large modern hotels and shops produce a general uniformity of
development, which obscures the local architectural heritage (Centre of African studies, 2-4 May, 1974:20).

Arising out of this dynamic situation, another comment that should be made is that due to historical background of the vertical type of tourism, there is a reinforcement of the dependence mentality on the part of the Kenyan, that of superiority on the part of the tourist. These two stances once a while come into conflict, but since docility is the main theme running through the training of the workers in this industry, it is always resolved by dictum, “the customer is always right: and more so if he is white”. (Migot-Adolla & Mkangi, 1982).

There is a growing awareness worldwide that unspoiled nature and, from the point of view of the tourist, “exotic” ecosystems, have a real economic value. However, most of these tourist assets are still very much under priced. For example, it has been estimated that each lion in an African national park has an annual visitor attraction value of US $27,000 and that each elephant herd is worth US$ 610,000. Yet at present the entrance fees for visitors to these parks are far below what the visitor would be willing to pay to watch these animals. Furthermore, the absence of adequate charges could lead to overuse of popular attractions to the point where their value is reduced or even eliminated. Many studies indicate that tourists will be willing to pay more if they knew that the extra money will be used to help protect the special features that they have come so far to see. (Lindberg, 1991).

Going by the social costs this industry is inflicting on the local population where it is located, it becomes very hard to conclude there is relatively little the local people are getting out of it, save the social problems which they will be left to grapple with long time after the tourists have gone away. Tourism is but a commodity for the rich to buy, but the social impact is for the poor to bear, (Migot – Adolla & Katama, 1982).
ASSUMPTIONS:

It is assumed that well researched ecotourism would lead to the following:

- Better utilization of the available resources like land and the abundant wildlife where the pastoralists, the rancher and the investor would all share in the business,

- Improved coexistence between pastoralists and agriculturalists as all participate in ecotourism. Both would release land in ecotourism development and thereafter supply labour and other materials for use in operations,

- Pulling together of resources like lands which would lead to development of ecolodges, water harvesting systems and other infrastructure,

- That the general welfare of the people by construction of schools, health facilities and improved security would be witnessed,

- Economic development touching on roads, air communication and other inter-related industries leading to improved environmental conservation would be realised.
OBJECTIVES OF THE STUDY

The general objective of this study is to investigate the potential for Ecotourism as a land use in the Southern Laikipia Plateau. The specific objectives are:

- To evaluate the effect ecotourism and general tourism has on the wealth creation in the study area,

- To analyse the relationship between agricultural earnings and ecotourism earnings in the study area,

- To discuss the cause of human-wildlife conflicts,

- To discuss inter-industry linkages between ecotourism and other sectors of the economy.
JUSTIFICATION OF THE STUDY

The problem of human-wildlife conflict in Kenya has escalated in recent years though man and wildlife have co-existed for many years. Rural people have regarded wildlife as a resource that is theirs to use because it plays a major role in their local cultures, diets and economics (Omondi, 1994). This has been particularly so in the arid and semi-arid lands those are well endowed with substantial wildlife resources. This situation is however changing because:

a. Demographic changes in ASALs, have threatened presence of wild animals outside the protected areas. This is mainly due to land use changes caused by influx of human population from the settlements and high agricultural potential areas of the neighbouring districts. With increased farming, the migratory regimes of wild animals are constrained. This has led to human-wildlife conflicts.

b. Most of the land in Kenya is Arid and semi-arid hence low agricultural potential. Yet this is the only area with space to absorb extra human population. The immigrants create a problem of land use, human-wildlife conflict and complicate pastoralism. There is need for land use options that are friendly to the fragile environment in the Asals. One of this has been tourism. But mass tourism in Asals may not be sustainable due to negative environmental impacts. One of the most suitable options in this environment is ecotourism.

c. Only 12% of Kenya's total area of approximately 569,250km² is arable. This portion of land consists of areas that have adequate rainfall for intensive crop farming (Omondi, 1984). Seasonal rainfall is the most critical factor in determining population density in Kenya. As a result 88% of Kenya's land is classified as Asals where a mere 20% of the population live (World Bank 1994).

d. In the past, the Kenya government has concentrated on developing the high potential areas such that the Asals have received very little attention (Omondi, 1984).

e. The country's population of about 30million and growing at about 3% per annum portrays a problem in regard to useful land available. Competition for land between the human settlement, general development and for wildlife conservation becomes a complicated issue.
Land subdivision in Laikipia, which grew steadily after attainment of independence in 1963, has intensified conflict between human population and wildlife. There is also a growing rivalry between agriculturalists and pastoralists due to resources scarcity.

The above observations lead us to the conclusion that:

- The land available in Laikipia district is no longer agriculturally sustainable due to climatic changes.
- That the increased human population which has led to more land subdivision to allow rain fed agriculture would add to further environmental degradation.
- That the resolve by the ranchers to convert to wildlife farming would lead to increased human wildlife conflict, poverty, charcoal burning and further degradation of the environment.
- That ecotourism as an alternative means of livelihood that would bring benefits to all needs to be researched further.
We would need to make a concoction of many tourism development theories to perhaps come out with something that would suit the remote and dry Laikipia District.

However Friedmann (1966) writes, “Spatial problem regions belong to category areas that because of the peculiarity of their resources or location demands a specialized development approach. They will include regions along national boarders, water sources development regions, regions suited to intensive development of tourism and fisheries and military zones. Programmes for resource development should in such regions be guided by the evolving demand for specific resources or resource related services such as tourism. Thought may be given to the possibility of incorporating within these areas the regions set aside for national forests or parks and all regions of low economic potential.” This observation suits Laikipia district but of course with some additives from other scholars.

LEIPER’S TOURISM SYSTEM

Source: Leiper, 1990
Leiper (1990) has reconceptualized MacCannell’s model categorizing the attractions of tourist destinations hierarchically into primary, secondary and tertiary nuclei. These nuclei are social or physical features of an attraction and destination that interest tourists. This study area has many of these that rise from social status of the many tribes that inhabit the area, the varied climate and imposing physical features.

The primary nuclei directs the selection of an attraction and destination, but in making the decision to travel, the tourist is also aware of the secondary nuclei of the destination which, unlike the primary nuclei, do not have any significant effect on the decision. The tourist is not aware of the tertiary nuclei until the destination has been reached, and therefore this cannot influence the initial decision. Leiper’s categorization may be trivial in nature but its connection with tourists and tourist environments and destinations makes it interesting. According to him, the nuclei reveal different aspects of the motives of the various types of tourists. In terms of these categories, the motives of a tourist searching for a new and unusual destination tend to lay stress on tertiary nuclei. Primary nuclei are emphasized in the motives of the tourist who is searching for familiar and common destinations differentiated from the person’s everyday environments mainly by their tourist scenes and staged authenticity.

But the crucial question is “why do people travel?” This is usually approached in the tourism literature from a psychological and individualistic point of view. Human needs are seen as the fundamental grounds for understanding tourism and the tourists. Mill and Morrison (1985) for example state that the motives for travel are created “when an individual wants to satisfy a need”. This notion refers to Maslow’s (1943) hierarchical theory of needs and its application to recreation research (Crandall, 1980).

Crompton (1979) classifies socio-psychological tourist motives (push factors) into categories such as relaxation, escape, regression, prestige and exploration. Fedness (1994), stresses more on the need for escape and relaxation as the commonest motives for travel. He observes however, that such needs are consequences of modernization and other societal transformations rather than complete explanations in themselves. Both MacConnell (1976) and Selwyn (1996) agree that tourists are creating and recreating those structures which modernity has demolished
and caused to vanish elsewhere. Krippendorf (1987) approaches tourism from the perspective of modernity and the wider change affecting industrial society. He reflects on these changes through dichotomies such as work, rest, job, family, freedom, dependence, risk, security etc.

Cohen (1988) and Richter (1995) term tourism as a multivalent activity that is more than one type of tourist-on-the-move. But there is another relationship between tourist and person who is described by Max Weber (1978) as instrumentally rational, value-rational, effectual and traditional. A specific tourist type is not necessarily equal to an individual tourist. The motives of tourists and the type of tourists change in space and time.

The Development Stage Theory however, connects us to the five stages of economic development, which were developed by Rostow in 1960. His model has the following stages of growth:

i) The Traditional Society,
ii) The Pre-condition for take-off,
iii) The take-off,
iv) The Drive to Maturity,
v) The Age of High Mass-consumption.

Tourism development does not of necessity have to follow these five stages as recorded. This is because a tourism zone could start by the development of just one resort around which other resorts could develop and hence the creation of a tourist zone (Miossec, 1976). The common factor in all these and one, which is crucial, is road and other interlinking modes of effective communication.

Tourists like many other clients like changes and this forces clients to keep shifting from old and monotonous resorts to new ones. This contradicts Miossec’s model of a unilinear path, and acts to confirm that tourism patterns in the developing countries does not of necessity have to follow the five stages of Rostow.
A common feature in most developing countries is that resorts could sprout out anywhere near a tourism site and remain successful without any road connection to any other resorts. Such resorts would thrive so long as there is no direct competition. More so, the tourist is still free and able to choose the most suitable ways of travelling, the appropriate destinations and the motives and needs attached to these within the existing structures (Giddens, 1984).

The process which Myrdal (1957) calls “Circular and Cumulative Causation” could be applicable in the area of study. This is because most resorts have turned out to be centres from where further development spills. Perroux (1955) could call it “growth poles”. However, the two models cannot fit word for word in the Laikipia plateau’s tourism because of other aspects that were not incorporated and perhaps other economic developments could be used to counterbalance the inequalities.

Most of these scholars have considered tourism as a positive instrument, which could be used to stir up development in traditionally difficult areas. Tourism has a high multiplier effect because of its interrelationship with other industries in both formal and informal sectors and directly with agricultural production, wildlife conservation, forestry and biodiversity conservation.

Tourism is known to be labour intensive and hence appropriate for developing countries like Kenya. Nature tourism is particularly fond of this. But if this develops into mass tourism, then foreign capital is required for investment to cater for accommodation and other infrastructural requirements. This leads to dependency on foreign capital (Britton 1982).

In conclusion, the dependency theory on one hand tends to suit mass tourism, which calls for foreign investment while ignoring the crucial domestic tourism. When considered in relation to the Diffusion paradigm, the two, while dwelling on mass tourism tend to ignore the common drifters who could be many and widely spread and because they tend to stay longer, the total sum of their expenditure is higher than that of the mass tourist. Fortunately, the drifters are more in the Southern Laikipia Plateau.
Nevertheless, all the tourism development theories including the Development Stage Theory, the Diffusion Theory and the Dependency Theory tend to agree that tourism has a strong multiplier effect.
SCOPE AND LIMITATIONS

The area of study is vast and the means of communication are poor. The only tarmac road is the small stretch of the Nyeri – Nanyuki – Meru highway, which touches the southeastern tip of Laikipia district. Most of the other roads are seasonal save for the murramed Nanyuki to Doldol and Nanyuki to Rumuruti roads. Covering the area of study needed careful driving. Communication here is expensive.

There is also some hostility and distrust between the pastoralists, the smallholder agriculturalists and the white ranchers. The agriculturalists mainly have not forgotten the tribal clashes of 1997 and this reference made data collection rather difficult.

The diversity of the new comers and their different interpretations of any research in the area did not make it easy for us.

The invasion of the ranches by the pastoralist after the later concluded that the leases, which gave “their” lands to the whites, were over was an issue that has not been resolved and this contributed immensely to the hardships we had to go through.
CHAPTER 2

STUDY AREA

Location and size:
The Southern Laikipia Plateau comprises mainly of Laikipia District, which is one of the fourteen districts of the Rift Valley province. This district borders Samburu to the north, Nyeri to the south, Isiolo to the northeast, Meru to the southeast, and Nyandarua to the south-west and Baringo and Nakuru districts to the east.

It lies between Latitudes 0° 18' South and 0° 51' north and between longitudes 36° 11' and 37° 24' east. It stretches 135 kilometres east to west and 120 kilometres north to south and covers an area of 9179 square kilometres which is divided into six divisions as shown below:

Table 2.1: Administrative Areas:

<table>
<thead>
<tr>
<th>Division</th>
<th>Area in sq Km.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lamuria</td>
<td>1,116</td>
</tr>
<tr>
<td>Central</td>
<td>2,355</td>
</tr>
<tr>
<td>Rumuruti</td>
<td>2,919</td>
</tr>
<tr>
<td>Mukogodo</td>
<td>1,129</td>
</tr>
<tr>
<td>Ng'arua</td>
<td>1,643</td>
</tr>
<tr>
<td>Nyahururu municipality</td>
<td>17</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>9,179</strong></td>
</tr>
</tbody>
</table>
Laikipia district lies in the valley between the Aberdare ranges and Mt. Kenya massifs to the south and the Great Rift Valley to the west. In the northwest, the plateau descends towards the floor of the Rift Valley, while in the north and east; it falls into areas that extend over many hundreds of kilometres towards the north. Although Mt. Kenya is situated to the southeast of Laikipia, it does not form part of the district.

The level plateau of the district is drained by the tributaries of Ewaso Nyiro river, which have their catchments in the slopes of the Aberdare’s and Mt. Kenya. The drainage of the entire district is dominated by the Ewaso Nyiro river and its tributaries which flow from south to north. These tributaries include Nanyuki, Rongai, Burguret, Segera, Naro Moru, Engare, Moyak, Ewaso Narok and Ngobit rivers. The flow of these rivers indicates that the district slopes gently from the highlands in the south to the low lands in the north.

Most areas of the district are low lying with most of it varying between 1800 and 2100 metres above sea level. We however have high altitude outcrops, which reach 2600 metres. These are to be found in Mukogodo and Loldaiga to the east. Due to its leeward position on the slopes of Mt. Kenya, this area is comparatively dry and low and is mainly used as pasture land, except for the mountain slopes and forest zones.

The most potential areas of the district can be found in the southwestern parts around the Marmanet area. This area is densely populated and has potential for reforestation. The eastern part is suitable for grazing while the plateau lying between the Rift valley and Mt. Kenya is the main ranching area.

Due to its altitude and location, the district experiences a relief type of rainfall. This ranges between 400 and 750 mm. Higher amounts are however witnessed on the slopes of Mt. Kenya and the Nyandarua range. While North Marmanet receives as much as 900 mm, the drier parts of Mukogodo and Rumuruti divisions barely reach 400 mm annually. The plateau, where most
ranches are found, has about 500 mm of rain annually while Marmanet and Mukogodo forests have an average rainfall of 706 mm annually.

**Availability of resources:**

There are a variety of resources in the district. These are land, livestock, forestry, water, fisheries and tourism. There are other resources that are yet to be recognized like wind and solar energy.

**Land and soils**

About 83% or 8084 sq km of land can be categorized, as high and medium form while the rest 17% is low potential and mainly non-agricultural land.

**Table 2.2: Land Utilization:**

<table>
<thead>
<tr>
<th>Land use</th>
<th>Area in sq km</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smallholder farms</td>
<td>2565</td>
<td>26.3</td>
</tr>
<tr>
<td>Large farms (ranches)</td>
<td>5681</td>
<td>64.2</td>
</tr>
<tr>
<td>Forest reserve area</td>
<td>842</td>
<td>8.6</td>
</tr>
<tr>
<td>Towns and local markets</td>
<td>80</td>
<td>0.8</td>
</tr>
<tr>
<td>Others</td>
<td>11</td>
<td>0.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>9179</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

**Water Resources**

Laikipia is semi-arid and availability of surface water is governed by the natural conditions of the Mt. Kenya and Aberdare ranges forest belts.

The population, particularly migrant population, is growing very fast. This calls for the need to conserve and careful harvesting of available surface water resources to meet the increasing demands for domestic, livestock and any other possible irrigation.
There is also the sub-surface water resource whose potential depends on the nature of the water bearing rock (aquifer) systems in place. The regional aquifer systems cover most areas that are underlain by volcanic rocks. This is the region between Mt. Kenya, Laikipia plains, Marmanet area up to Suguta Marmar in Samburu district. The region covered by the metamorphic rocks, mainly Mukogondo division and Northern parts of central division have local system aquifers. The regional aquifer systems are extensive and are connected whereas the local aquifers system are limited in extent and mainly each aquifer estimated that the district has up to 120,220 million cubic metres of recharge water annually although most of it is lost as base flow to springs and rivers. (ESAG) Journal, vol. 8, September 1998)

### Table 2.3 Crop production trends 1992-2000:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>38,850</td>
<td>23,460</td>
<td>24,240</td>
<td>41,540</td>
<td>37,490</td>
<td>35,010</td>
<td>35,208</td>
<td>23,052</td>
<td>19,440</td>
</tr>
<tr>
<td>Wheat</td>
<td>8,480</td>
<td>4,170</td>
<td>4,880</td>
<td>8,360</td>
<td>8,700</td>
<td>13,816</td>
<td>12,460</td>
<td>12,575</td>
<td>5,940</td>
</tr>
<tr>
<td>Beans</td>
<td>3,660</td>
<td>2,060</td>
<td>5,670</td>
<td>5,450</td>
<td>5,370</td>
<td>3,092</td>
<td>4,682</td>
<td>1,394</td>
<td>1,427</td>
</tr>
<tr>
<td>Irish potatoes</td>
<td>13,220</td>
<td>11,800</td>
<td>6,400</td>
<td>2,070</td>
<td>7,400</td>
<td>21,870</td>
<td>20,698</td>
<td>16,000</td>
<td>12,100</td>
</tr>
</tbody>
</table>

Source: Central Bureau of Statistics 2001

Agricultural activities in this area continue to face myriads of problems, which hinder realization of better yields. These range from aridity and unpredictable climate. Poor infrastructure, lack of technology and credit facilities to poor marketing systems and management. Lack of processing of the agricultural produce to add value and increase the benefits is a detriment to the farmers.
Table 2.4 Livestock production trends 1992 – 2000:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td>271,707</td>
<td>263,000</td>
<td>231,500</td>
<td>233,250</td>
<td>259,000</td>
<td>230,200</td>
<td>259,000</td>
<td>265,400</td>
<td>218,000</td>
</tr>
<tr>
<td>Sheep</td>
<td>369,000</td>
<td>391,140</td>
<td>228,000</td>
<td>254,475</td>
<td>259,650</td>
<td>254,000</td>
<td>259,500</td>
<td>283,000</td>
<td>238,000</td>
</tr>
<tr>
<td>Goats</td>
<td>155,640</td>
<td>142,818</td>
<td>181,000</td>
<td>189,771</td>
<td>193,560</td>
<td>148,721</td>
<td>193,000</td>
<td>243,000</td>
<td>220,000</td>
</tr>
<tr>
<td>Poultry</td>
<td>144,000</td>
<td>300,000</td>
<td>260,000</td>
<td>244,940</td>
<td>257,200</td>
<td>285,000</td>
<td>313,000</td>
<td>270,000</td>
<td>230,000</td>
</tr>
<tr>
<td>Cats</td>
<td>252</td>
<td>262</td>
<td>650</td>
<td>687</td>
<td>900</td>
<td>687</td>
<td>390</td>
<td>900</td>
<td>750</td>
</tr>
<tr>
<td>Camels</td>
<td>940</td>
<td>2,210</td>
<td>2,400</td>
<td>2,847</td>
<td>3,400</td>
<td>2,143</td>
<td>3,400</td>
<td>5,500</td>
<td>6,500</td>
</tr>
<tr>
<td>Rabbits</td>
<td>2,400</td>
<td>2,200</td>
<td>3,200</td>
<td>3,550</td>
<td>4,030</td>
<td>3,500</td>
<td>4,030</td>
<td>8,700</td>
<td>8,000</td>
</tr>
<tr>
<td>Donkeys</td>
<td>3,100</td>
<td>3,870</td>
<td>4,175</td>
<td>4,335</td>
<td>4,550</td>
<td>4,300</td>
<td>4,000</td>
<td>5,300</td>
<td>5,000</td>
</tr>
<tr>
<td>TBH</td>
<td>7,896</td>
<td>8,000</td>
<td>8,100</td>
<td>8,200</td>
<td>8,500</td>
<td>8,000</td>
<td>8,300</td>
<td>8,500</td>
<td>13,145</td>
</tr>
<tr>
<td>Oghive</td>
<td>34,760</td>
<td>35,000</td>
<td>35,600</td>
<td>35,400</td>
<td>36,000</td>
<td>35,000</td>
<td>36,000</td>
<td>44,000</td>
<td>45,000</td>
</tr>
</tbody>
</table>

Source: Central Bureau of Statistics 2001

There has been a steady decrease in the number of cattle and sheep due to excessive land subdivision, collapse of communal cattle dips and high cost of drugs and acaricides. Destruction of the environment has resulted in less water availability and this has led to an increase in the number of donkeys to ferry water. Less vegetation has led to an increase in the number of camels who can travel far and wide and pick food from high bushes.
Table 2.5: Visitors to Parks and Game Reserves in Southern Laikipia Plateau:

<table>
<thead>
<tr>
<th>Year</th>
<th>Average no. of visitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>7,000</td>
</tr>
<tr>
<td>1993</td>
<td>15,000</td>
</tr>
<tr>
<td>1994</td>
<td>11,000</td>
</tr>
<tr>
<td>1995</td>
<td>11,000</td>
</tr>
<tr>
<td>1996</td>
<td>21,000</td>
</tr>
<tr>
<td>1997</td>
<td>21,000</td>
</tr>
<tr>
<td>1998</td>
<td>6,500</td>
</tr>
<tr>
<td>1999</td>
<td>10,500</td>
</tr>
<tr>
<td>2000</td>
<td>8,000</td>
</tr>
<tr>
<td>2001</td>
<td>12,000</td>
</tr>
<tr>
<td>2002</td>
<td>9,600</td>
</tr>
</tbody>
</table>

Source: Kenya National Parks and Museums, 2003

From the table, it is clearly noted that average number of visitors has increased by 71.4% from 1992 to 2001. However, there has been a reduction from 1997 due to escalation of insecurity in the area coupled with political instability and acts of terrorism, which has negated the prospects of tourism promotion. In essence the average number of visitors declined from 21,000 to 12,000 between 1997 and 2001. This impacted negatively on the revenue base from the tourism sector in this area.
Table 2.6 shows the relationship between tourism earnings and G.D.P. per capita, growth of G.D.P. as percentage and visitor arrivals by purpose:

**Table 2.6 Tourism Earnings:**

<table>
<thead>
<tr>
<th>Period</th>
<th>Tourism Earnings in Ksh mu</th>
<th>GDP Per capita in Ksh mu</th>
<th>% Growth of GDP</th>
<th>Visitors Arrival (Holidays)'000</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>14,260</td>
<td>3,556.4</td>
<td>0.5</td>
<td>607.7</td>
</tr>
<tr>
<td>1993</td>
<td>28,100</td>
<td>10,380</td>
<td>0.2</td>
<td>678.8</td>
</tr>
<tr>
<td>1994</td>
<td>24,440</td>
<td>8,720</td>
<td>3.0</td>
<td>679.2</td>
</tr>
<tr>
<td>1995</td>
<td>25,000</td>
<td>12,200</td>
<td>4.8</td>
<td>795.7</td>
</tr>
<tr>
<td>1996</td>
<td>25,600</td>
<td>15,600</td>
<td>4.6</td>
<td>820.8</td>
</tr>
<tr>
<td>1997</td>
<td>22,640</td>
<td>17,000</td>
<td>2.4</td>
<td>864.8</td>
</tr>
<tr>
<td>1998</td>
<td>17,509</td>
<td>3,556.4</td>
<td>1.8</td>
<td>686.9</td>
</tr>
<tr>
<td>1999</td>
<td>21,367</td>
<td>3,527.3</td>
<td>1.4</td>
<td>746.9</td>
</tr>
<tr>
<td>2000</td>
<td>21,553</td>
<td>3,424.8</td>
<td>0.2</td>
<td>778.2</td>
</tr>
<tr>
<td>2001</td>
<td>24,256</td>
<td>3,398.6</td>
<td>1.2</td>
<td>728.8</td>
</tr>
</tbody>
</table>

From Table 2.7 it can be inferred that period of higher GDP/ per capita income, higher GDP growth rates and visitors arrivals are the periods 1994 to 1996.

Table 2.7: Hotel Rooms, Beds Available and Beds occupied 1992-2001:

<table>
<thead>
<tr>
<th>Year</th>
<th>Rooms Available</th>
<th>Occupancy Rate</th>
<th>Beds Available</th>
<th>Occupancy Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992</td>
<td>342</td>
<td>44</td>
<td>705</td>
<td>39</td>
</tr>
<tr>
<td>1993</td>
<td>504</td>
<td>39</td>
<td>742</td>
<td>44</td>
</tr>
<tr>
<td>1994</td>
<td>710</td>
<td>46</td>
<td>1003</td>
<td>30</td>
</tr>
<tr>
<td>1995</td>
<td>396</td>
<td>32</td>
<td>762</td>
<td>9</td>
</tr>
<tr>
<td>1996</td>
<td>365</td>
<td>41</td>
<td>690</td>
<td>37</td>
</tr>
<tr>
<td>1997</td>
<td>366</td>
<td>41</td>
<td>578</td>
<td>38</td>
</tr>
<tr>
<td>1998</td>
<td>314</td>
<td>42</td>
<td>487</td>
<td>19</td>
</tr>
<tr>
<td>1999</td>
<td>310</td>
<td>43</td>
<td>358</td>
<td>22</td>
</tr>
<tr>
<td>2000</td>
<td>334</td>
<td>44</td>
<td>385</td>
<td>31</td>
</tr>
<tr>
<td>2001</td>
<td>199</td>
<td>35</td>
<td>383</td>
<td>29</td>
</tr>
</tbody>
</table>

Source: Central Bureau of Statistics, 2002

It can be observed from the table that bed occupancy rate has been fluctuating and declining steadily from 39% in 1992 to 29% in 2001 implying a 10% drop in 10 years.

The sector has been facing hindrances from terrorism and stiff competition from other tourism destinations like South Africa and Egypt.
METHODOLOGY:

The applicable methodology would be in line with answers to the following questions:

- What factors would contribute to development of ecotourism in Laikipia District?
- What factors would work against development of ecotourism in Laikipia District?

We would use questionnaires, direct interviews and observations particularly on the human–wildlife conflict, which seems to be the backbone on which the success or failure of ecotourism in the study area would hold.

The area under study is very expansive. It covers 9179 square km. We had therefore to use cluster-sampling method.

To achieve this, we made a geographical sketch of the known wildlife corridors between the Aberdare zone, the Mt. Kenya belt and the drier grasslands of the north. We used features like rivers, hills, dry riverbeds and roads to map out our clusters, which made our population. From this population we picked three representative clusters as follows:

- The Northern cluster covering the Ethi/Ngare Ndare,
- The Middle cluster covering Kariunga/Mutirithia,
- The Southern cluster covering Mutaro/Muhomia.

The total number of demarcated freehold lands in these clusters was 257. This was our population and we used systematic random sampling by picking every 5th farm along the roads. It is to these 50 parcels (our sample) that we applied our questionnaire.

Data Collection:

We carried out personal interviews with individual leaders or elders of the households or in their absence we interviewed any grown up member of the household.
Interviewing these people needed patience as most of them claimed that the exercise was not beneficial to them. Letters of introduction from the Provincial Administration were at times treated with suspicion due to the ongoing insecurity in the area.

Methods of data collection:
We used direct questionnaires, which were supplied to the 50 members of our sample. Most of the literate members of the households could fill them with ease. This way we received our primary data, which we compared with secondary data from the lands office, the KWS, District development office and the Central Bureau of Statistics.

Data Analysis:
We summarised the data into clusters and tables for ease of interpretations as explained below:

The Clusters:

I. Ethi/ Ngare Ndare
This area is located in the northeastern part of the district. It neighbours large farms like the Borana, Lewa Downs and Gordon’s ranch. It is relatively dry and is used for livestock farming and wheat production. There is an extensive cattle rustling forcing people to prefer wheat farming.

The large farms in the area practice ecotourism with the famous Il’Ngwesi in their midst. Some of the common wildlife includes the endangered grey’s zebra, leopards, monkeys, porcupines, gazelles, lions, elands and elephants. The area is sparsely populated with a density of 25 persons per square kilometre.

II. Kariunga/Mutirithia:
This area neighbours the Nanyuki to Doldol road just about 20 km from Nanyuki. Livestock keeping and mixed crop farming is the main economic activity.
Low rainfall leads to occasional crop failure though destruction of crops by wild animals is very common. The common wild animals include elephants, chimpanzees, monkeys, baboons, wild pigs, jackals, lions, and hyenas.

The region borders various ranches that harbour substantial numbers of wildlife on the loose, which does not augur well with the activities of small holders. Many farmers are therefore abandoning their plots due to drought and more so the manifestation of human-wildlife conflicts hence most of the land has reverted to communal uses favouring wildlife (Huber and Opondo, 1995).

III Mutaro/ Muhonia
This part consists of parts of Sirima and Ngobit administrative locations. The area is almost surrounded by the Ol Pejeta ranch. The other large farms that encourage wild animals are Suguroi, Tharua and ADC Mutara.

The common animals in this area are elephants, bushbucks, oryx, elands and buffaloes. There are also predators like lions, cheetahs, hyenas and jackals.

The type of agriculture practiced here is mixed farming mainly of maize, beans cabbages and potatoes. The area along rivers Ngobit and Mutaro has become an important horticultural crop-producing corridor, with an irrigation scheme of 7 square kilometres at Mutaro. The river valleys are also important wildlife migratory corridors with Ngobit river valley having salt licks traditionally used by elephants and other animals. Smallholder farmers tend to block this corridor in their agricultural activities.

Land sizes
The area had the following land distribution:

a) Ethi/ Ngare Ndare

Land sizes vary and the population is less than at Mutaro/ Muhonia

<table>
<thead>
<tr>
<th>Land acreage owned</th>
<th>1 - 3</th>
<th>4 - 6</th>
<th>7 - 9</th>
<th>10 - 12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents</td>
<td>9</td>
<td>1</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

= 16
b) **Kariunga/ Mutirithia**

Land sizes are larger than at Mutaro and Ethi but the area is drier

<table>
<thead>
<tr>
<th>Land acreage owned</th>
<th>1-10</th>
<th>11-30</th>
<th>31-60</th>
<th>above 61</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents</td>
<td>7</td>
<td>4</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

\[ \text{Total} = 14 \]

c) **Mutaro/ Muhonia**

The population density is high and land parcels are relatively small as evidenced from the respondents

<table>
<thead>
<tr>
<th>Land acreage owned</th>
<th>1-3</th>
<th>4-6</th>
<th>7-9</th>
<th>10-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondents</td>
<td>6</td>
<td>5</td>
<td>1</td>
<td>8</td>
</tr>
</tbody>
</table>

\[ \text{Total} = 20 \]

**Sources of Human-Wildlife conflict**

The survey established that all the respondents have had at least a visual encounter with wild animals in their areas. 98% of the people confirmed that conflicts between people and wildlife existed.

Poor handling of their complaints had fuelled animosity between the people and the government and particularly the Kenya Wildlife Service, which the people termed insensitive to their problems.

The rankings of the people gave elephants position one in terms of destruction and our investigations also confirmed that other problems experienced from wildlife were:

- Crop destruction, human injury and death.
- Destruction of infrastructure and fences.
- Killing of livestock and transmission of diseases.
- Soil trampling.
- Instilling fear among residents.
Land-use Conflicts

The study found out that human settlement patterns have almost cut off Laikipia from the Aberdare and Mt. Kenya ecosystems. The intensity of human settlements and subsequent farming methods in Mutaro/Muhonia have completely closed the migratory route to and from the Aberdare and Laikipia. Farmers therefore, experience constant invasion by wild animals that use traditional migratory routes that pass through their farms.

From that land-use conflict, one can safely deduce that the main issue of this situation is the survival needs of the local people. Thus conservation cannot be considered in isolation of the needs of these local actors. Local people would therefore support conservation measures once they are sure of possible economic benefits.

Farmers’ views on the KWS:

Farmers’ views on the KWS are negative. They consider it as an organization that favours wildlife to human beings. They consider it as an organ of further impoverishment of the already poor farmers. This is mainly because the KWS takes too long to respond to the cries of the farmers. Many of the respondents pointed out that KWS takes too long to respond when farmers call them to drive out wild animals.

There is even further acrimony when the issue of compensation comes in. A human life is compensated with a paltry 30,000/00. This figure takes at least 2 years to reach the claimant.

Assessment and compensation for domestic animals killed by wildlife is very frustrating not to mention compensation for damaged crops, which is almost none existent.
Economic Effects

There is general crop damage particularly in areas where agriculture has obstructed wildlife migratory routes. Elephants would certainly destroy any fence that stands on their way when they want to enter any cultivated area. They also destroy other infrastructures like granaries when in search of stored feed. Their activities are normally at night and they move back to the safety of their protected areas at dawn.

Bush pigs, monkeys and porcupines destroy or feed on agricultural crops during the day. They are destructive to crops while monkeys are known to resist women who try to scare them out of the shambas. Predators like lions are known to prey on cattle while leopards and hyenas prey upon sheep and goats. Residents were also concerned about transmission of diseases from wild animals to livestock. The diseases that are transmitted commonly are trypanosomiasis and east coast fever.

Social Effects

Presence of wild animals in their neighbourhood affects the social life of the local people. This is because they cannot go on with their daily routines in total ignorance of the wild animals. This is because they cannot graze their cattle or herd their goats and sheep without due care. They cannot move about freely during the day while movement at night is almost banned.

Teachers and children indicated that they are sometimes not able to arrive in school on time due to fear instilled on them, at the same time leaving early before the normal schooling hours (Mathuva, 1999). This has affected the school curricula adversely besides the performance in national examinations.

Availability of Wild Animals:

According to surveys by the KWS, Laikipia is only second to the Mara in as far as wildlife numbers is concerned.

Its geographical location which takes it from the snow capped Mt. Kenya to the low lying grasslands makes it a haven for all types of wildlife, bird species and plants. It has one of the richest bio-diversities in Kenya.
A survey coordinated by the Kenya Wildlife Services in February 2004 and which was done on blocks of 2.5 by 5 kilometres gives out the following figures:

Table 3.1: Wild life and livestock figures:

### Wild life:

<table>
<thead>
<tr>
<th>Species</th>
<th>Feb 2003</th>
<th>Std Error</th>
<th>Feb 2004</th>
<th>Std Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plains Zebra</td>
<td>36,372</td>
<td>5,777</td>
<td>33,437</td>
<td>5,585</td>
</tr>
<tr>
<td>Impala</td>
<td>4,389</td>
<td>888</td>
<td>7,314</td>
<td>1,443</td>
</tr>
<tr>
<td>Grant’s Gazelle</td>
<td>4,956</td>
<td>1,031</td>
<td>6,773</td>
<td>1,016</td>
</tr>
<tr>
<td>Thomson’s Gazelle</td>
<td>2,529</td>
<td>717</td>
<td>4,584</td>
<td>914</td>
</tr>
<tr>
<td>Eland</td>
<td>1,562</td>
<td>489</td>
<td>2,214</td>
<td>609</td>
</tr>
<tr>
<td>Buffalo</td>
<td>1,953</td>
<td>765</td>
<td>1,338</td>
<td>411</td>
</tr>
<tr>
<td>Elephant</td>
<td>2,947</td>
<td>948</td>
<td>4,584</td>
<td>873</td>
</tr>
<tr>
<td>Harte Beest</td>
<td>865</td>
<td>305</td>
<td>755</td>
<td>312</td>
</tr>
<tr>
<td>Giraffe</td>
<td>1,395</td>
<td>272</td>
<td>1,602</td>
<td>446</td>
</tr>
<tr>
<td>Oryx</td>
<td>1,395</td>
<td>475</td>
<td>596</td>
<td>179</td>
</tr>
<tr>
<td>Water Buck</td>
<td>37</td>
<td>36</td>
<td>122</td>
<td>48</td>
</tr>
<tr>
<td>Grevy’s Zebra</td>
<td>948</td>
<td>373</td>
<td>233</td>
<td>98</td>
</tr>
<tr>
<td><strong>Sub totals</strong></td>
<td><strong>59,348</strong></td>
<td></td>
<td><strong>63,462</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Livestock

<table>
<thead>
<tr>
<th>Species</th>
<th>Feb 2003</th>
<th>Std Error</th>
<th>Feb 2004</th>
<th>Std Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td>156,312</td>
<td>14,671</td>
<td>172,162</td>
<td>13,027</td>
</tr>
<tr>
<td>Sheep and Goats</td>
<td>473,856</td>
<td>48,027</td>
<td>431,341</td>
<td>42,379</td>
</tr>
<tr>
<td>Camel</td>
<td>2,520</td>
<td>673</td>
<td>2,441</td>
<td>570</td>
</tr>
<tr>
<td>Donkey</td>
<td>3,208</td>
<td>418</td>
<td>2,674</td>
<td>513</td>
</tr>
<tr>
<td><strong>Sub total</strong></td>
<td><strong>635,896</strong></td>
<td></td>
<td><strong>608,618</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Grand Total**  

|                | **695,2444** |           | **672,080** |           |

Source: Researcher, September 2004
A survey coordinated by the Kenya Wildlife Services in February 2004 and which was done on blocks of 2.5 by 5 kilometres gives out the following figures:

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Livestock

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<tr>
<td>Sub total</td>
<td>635,896</td>
<td></td>
<td>608,618</td>
<td></td>
</tr>
</tbody>
</table>

Grand Total 695,2444 672,080

Source: Researcher, September 2004
ALTERNATIVE LIVELIHOODS

Unlike the neighbouring zones of Mt. Kenya, many features hinder agricultural development in Laikipia District. These are historical (the way the land is owned), climatic (the climate is not good for commercial agriculture), soils (these are coarse and dry), markets are remote and the culture of the local people does not promote commercial agriculture outside pastoralism. This situation leaves the local people with few alternatives. They therefore turn to charcoal burning, sand harvesting and quarrying to make a living. We will explain charcoal production for an example.

Charcoal production

Laikipia district is characterized by diverse ecological zones, resulting from interaction of different ecological factors such as climate, soils and topography (Hoesli, 1995). The wide range of environmental variations is mainly determined to a large extent by rainfall, which varies greatly. These variations in rainfall coupled with the ecological fragility are responsible for the diversity of vegetation cover of the area.

Despite the government ban, charcoal burning is common in most areas of Laikipia district. This practice is threatening the survival of acacia trees like the mubica, seyal, nilotica, drepanolobium, tortilis, and xanthophloea and mellifera acacias.

Charcoal burning is not sustainable but the choice of short-term economic benefits ignoring the long-term consequences is the norm here. Increasing wood-fuel demand, high inflation rate, reduced food production and unemployment in the semi-arid Laikipia propagates this. Thus human physio-biological needs take precedence over other needs (Kyengo, 1998).

The climate, the soils and other ecological factors dictate that crop farming in settlements below 15 acres is not feasible (Kohler, 1987). This leads to a search for alternative sources of income to purchase foodstuff and other needs.

Some factors that promote charcoal burning include:

- It is viewed as an additional as well as alternative source of income,
• It is an accepted method of land clearing for change of user,
• The many absentee landowners allow their neighbours to keep an eye on the idle land.

“Clearing” for better usage of the land therefore becomes necessary and charcoal burning is an obvious option.

Charcoal production on the whole continues to cause various environmental issues:

➢ There is encroachment of water resources and catchment areas in tree felling.
➢ That charcoal burning leads to some health problems to the charcoal producers who tend to look weak and develops chest complications.
➢ Continuous felling of these indigenous trees could lead to their extinction.
➢ The soil structure and chemistry of the charcoal burning sites changes after the charcoal burning exercise; it takes many years before the vegetation type are re-established.
➢ Trees are said to influence ecological stability and the increase in tree felling could lead to desert-like conditions.
➢ That the continuous felling of the trees by the charcoal burners interferes with the habitat of the small organisms and this alters the bio-diversity.

Charcoal production has other socio-economic traits in that:

❖ Most of the charcoal burners are poor people who tend to spend their meagre incomes on cheap local brews. Their sons also engage in this activity and the cycle continues.
❖ Charcoal burners spend little time in crop production leading to famine even when the rains are good.
❖ The easy access to money through charcoal burning has removed many children from schools as they find it easier to become charcoal burners.

Varying soil characteristics
The soils in an area and the management that we put it to have an influence on water storage and availability to plants, runoff, fertility, erosion and water loss by evaporation.
The highlands (from Mt. Kenya) to lowlands (the Ewaso Nyiro basin), system has a high spatial variability of soil type and properties. This is because soil formation and characteristics depend on geology, climate, land formation and human activities. The high lands –lowlands system gives a wide mixture of all these. This is the variance between the cold wet mountains and steep slopes, which fall to the warm, dry and flat lowlands.

The great variability of land resources from mountains to the lowlands and limited and highly variable water resources, combined with the high pressure of the growing populations around Mt. Kenya pose a major challenge to optimize the use of natural resources on one hand, and on the other, to minimize the risk of degradation for the whole highland-lowland system (Liniger et al., 1998).

Mt. Kenya and the Aberdare ranges have loose volcanic soil mainly under the forest cover. Human activities have however led to clearing of large tracts of forests. This reduces water infiltration capacity and water storage capacity. The results are increased runoff and soil erosion, which culminates in lower land productivity. The lower mountain slopes and the upper plains have deep soils with high water retention capacity, high fertility and good workability of the soils. These are the soils that are suitable for rainfed crop production more so because they are in the semi-humid to semi-arid environment. Further down to the plateau, the soils are exposed which leads to surface crusting and sealing. The soils are fertile and have good storage capacity but workability is restricted due to stickiness when wet and hardness when dry. Here rainfall is not enough for rainfed agriculture.

For the soils of the basement complex, the following management challenges occur: the soils on the foot slopes of the hills and scarps are extremely susceptible to gully erosion if runoff water builds up on the higher slopes. Surface scaling and crusting of the soil presents the greatest challenges to all the soils on gentle to steep slopes. When soil is not covered by vegetation or dead material, the surface becomes very hard, reducing water infiltration. The consequences are high runoff losses, erosion, low seed germination, or poor development of the seedling. There is a vicious degradation cycle that ends in very bare areas where rainfall cannot infiltrate and vegetation cover cannot be restored, and soils become eroded (Liniger and Thomas, 1998).
CHAPTER 4
RESEARCH FINDINGS AND DISCUSSION

Examples of Ecotourism Centres

To illustrate ecotourism and its role in environmental conservation in the Southern Laikipia plateau, we have picked on two diverse tourist centres. These are the II’Ngwesi ecolodge, which is owned by the local community and the Sweetwaters Tented Camp, which is owned by a multinational company.

The II’Ngwesi Ecolodge:

II’Ngwesi ecolodge is located on the northern border of Laikipia district and is accessible from both Timau and Isiolo towns. It is on the lowlands facing Mt. Kenya. It has two good neighbours namely the Lewa Wildlife Conservancy and the Borana ranch to which the ecolodge is associated by sharing of wildlife grounds, corridors and management. The ecolodge is a 12 bed self catering unit which was established by the local Masaai community in 1996.

The II’Ngwesi Group Ranch covers an area of 16500 hectares of which about 6500 have been set aside for wildlife. The owners are also members of other ranches.

Despite the area being prone to drought, the ranch is a seasonal home to about 600 elephants and other wildlife species like the reticulated giraffe, oryx, dikdik, gravy zebra, gerenuk and others. The conservation methods applied are encouraging many other species to visit the area.

In the 1980’s Laikipia was a focal area for the first Conservation of Biodiversity Resource Areas (COBRA) project funded by USAID and implemented by the Kenya Wildlife Services. Through COBRA, the II’Ngwesi community benefited from mobilization tours to Maasai Mara to change the attitudes of communities towards wildlife resources and stimulate a sense of value for them. A change of attitude towards conservation would also enable members to come up with a community action plan. The outcome was the construction of the lodge when KWS helped the group ranch to access grants worth 9.8 million to fund the capital investment needed for the lodge (Sikoyo et al., 2001).
Commercial viability

Evaluations indicate that II’Ngwesi is commercially viable, and that gifts of capital, time and skills have contributed greatly to this viability. The table below would confirm this:

**Table 4.1 Actual commercial performance 1998 – 2002:**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Rate of Return</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>on sales</td>
<td>9%</td>
<td>33%</td>
<td>29%</td>
<td>31%</td>
</tr>
<tr>
<td>2. Rate of Return</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>on investment</td>
<td>3%</td>
<td>14%</td>
<td>12%</td>
<td>13%</td>
</tr>
<tr>
<td>3. Annual growth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>on sales/month</td>
<td>NA</td>
<td>23%</td>
<td>22%</td>
<td>24%</td>
</tr>
<tr>
<td>4. Profit per occupied</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>night (Kshs)</td>
<td>1183</td>
<td>4880</td>
<td>4600</td>
<td>5100</td>
</tr>
</tbody>
</table>

(Source II’Ngwesi Financial Accounts)

There is need to check the sustainability of the lodge by addressing the following:

a. Would it survive if donations were cut off?

b. Does the lodge have management and marketing capacity without assistance from both Lewa Downs Conservancy and Borana ranches?

Yes it would by external recruitment and intensification of the ongoing training at the lodge. This is strengthened by the fact that II’Ngwesi is now known internationally.

During the World Summit on Sustainable Development held in Johannesburg in 2002, II’Ngwesi was chosen as one of the five winners of the 2002 Equatorial Initiative Awards. The Equatorial Initiative is designed to reduce poverty through the conservation and sustainable use of biodiversity in the equatorial belt. The belt covers 116 countries, which are located between 23.5 degrees north and south of the equator. This it does by fostering, supporting and strengthening community partnerships (Ecoforum, 2003)
**Eco-friendly nature:**

The lodge is renowned for its natural beauty and the way it fits in its natural background of intercropping shrubby hills (photograph number 7).

The buildings are well crafted and only local materials are used to complete the open plan features. Its organic nature in construction enables it regulate its own internal temperature (photograph number 5).

The rock water harvesting on the hills above and thereafter feeding it to the lodge by gravity further enhances the eco friendly nature of the lodge. Water heating and lighting are powered by solar energy for the area is hot all through the year.

The rooms are designed with a half wall to enable inner coolness and also enable clear view of the beautiful landscape with its flora and fauna (photograph number 1). Though the bathrooms are all well equipped, they all have an “under the stars” shower.

The strikingly designed swimming pool, which has been hewn from rocks, adds to the spectacle of the place as one easily observes wild animals licking salt below while the visitor enjoys the coolness of the water. This is more so because the swimming pool needs to be cooled rather than heated (photograph number 2).

The hosts, who are the local Maasai, are the workers at the lodge. They release an overriding desire to show out this piece of conservation to the visitors (photograph number 6).

The lodge looks out over the vast landscape of Kenya’s Northern Frontier District - over unspoiled land where not a single light shines out at night and only the chorus of the African bush is heard both day and night. A water hole with a covered viewing platform offers a chance to watch the animals which include lions, elephants, leopards, lesser and greater kudu and buffalo coming in to drink (LWF, 2003).
II’Ngwesi and the neighbouring community:

Since the opening of the eco-lodge, the local and neighbouring communities have benefited in one way or another:

a. **Education** – The II’Ngwesi shareholders have opened a well-staffed and equipped primary school. This school has facilities for both pre-primary and primary pupils and it accepts children from the neighbouring ranches. Brilliant children are also eligible for bursaries in secondary schools and other technical institutions.

b. **Security** – The II’Ngwesi eco-lodge has security systems both for their livestock and for the wildlife. They have scouts at several points around the ranch and every watch-station is interconnected to the others through radio communication. The neighbours benefit from this enhanced security arrangement.

The security wardens of the II’Ngwesi also ensure that intruding herders are not welcome into the area and this also benefits the neighbours.

c. **Dry Season Grazing** – During the dry periods the lodge opens up its wildlife lands for grazing. This includes access to the constructed water points within the park to which neighbours get access.

d. **Access to Health** – There is a well-stocked clinic at the eco-lodge which is served by a well qualified nurse who not only attends to the sick of II’Ngwesi but also to the neighbours at a small fee.

Livestock also benefits from veterinary services, which are offered by the neighbouring Borana ranch at minimum charges. The Borana ranch also helps in the maintenance of the cattle dips.

e. **Road Communication** – The attachment of the lodge to the Lewa Downs and Borana ranches ensures that the roads to and from the area are passable all through the year. The neighbours therefore benefit from better communication in the area.
f. General Awareness – The eco-lodge has brought general awareness that there are
direct benefits from conservation of wildlife. That livestock keeping should not be
understood to be the only means of livelihood in the dry areas and that the two
(wildlife and livestock) can co-exist in the same areas provided there is adequate and
proper management.

That there is potential in collecting run-off water into small dams, which could be
preserved for use by wildlife, and livestock during the dry periods and perhaps for
agriculture.

That hitherto untapped and plentiful wind and sunshine could be used for
development while the local people, with good training would manage their own
tourist centres and tap the benefits that accompany ecotourism.

That support from external organizations like the KWS, the Lewa Downs and Borana
ranches and others could be combined for the benefits of all and particularly
conservation of the environment.

The Cultural Boma:
Upon the establishment and opening up of the II’Ngwesi, people from Ntalabany and Leperua
neighbourhoods of II’Ngwesi group ranch were drawn away to form self-help Cultural Boma.
This was constructed 4 km from the lodge and owned by 25 members.

The customers of the Cultural Boma are mainly from the lodge, the Borana ranch and Lewa
Downs because the main source of income is through cultural performances, sale of handicrafts
and artefacts.

Is II’Ngwesi Sustainable?
An ecotourism product should have some qualities that distinguish it clearly from a general
tourism product. These need to be:
a. Environmentally friendly,
b. Be financially self-sustaining,
c. Involve or otherwise directly benefit the local community,
d. Be based on natural attractions that are sure of preservation,
e. Be insulated from the adverse effects of political change and interference,
f. Minimize the impact of fluctuations in the market.

It is however worthwhile to make some observations that ought to be observed in line with the sustainability of this ecolodge, that:

❖ The current design and infrastructure of the II’Ngwesi is no doubt environmentally friendly. This would be so if they continue with the low volume/high cost strategy as it is today. There is however the fear of a possible increase in human population arising from the improved economic status of the local people. Any increase in human population would naturally call for an increase in the demand for land to keep the larger households with their livestock, which would in turn reduce the amount of available land for wildlife. Such changes would result to environmental changes.

❖ The current management of the Lewa Downs Conservancy did the conception of the II’Ngwesi. It is them who approached the KWS and other donors for funds to construct the II’Ngwesi as a community project.

❖ The Management and particularly the advertising role of the ecolodge continue to be done by the Lewa Downs. They are also involved in the staffing and the mandatory training of senior staff.

❖ The important area of security and communication to and from the lodge relies heavily on the Lewa Downs conservancy.

❖ Most importantly, and through them the Borana Ranch share wildlife corridors and grounds with the II’Ngwesi. On its own, the II’Ngwesi does not have enough grounds to hold the wildlife.
This means therefore that the survival of II’Ngwesi depends mainly on the goodwill of the current management and ownership of Lewa Downs and Borana Ranch. It is however important to note that:

- The local community are the owners and direct beneficiaries of the lodge.
- If there is no change in the ownership of the adjacent lands, and if the populations are kept low, then the natural attractions can be maintained for now.
- The current political system that allows registration of group ranches is good for the lodge. But if a political system that would demand for subdivision of group ranches comes in, then the II’Ngwesi would suffer.
- The current system of low volume/high cost strategy would keep the lodge afloat while still praying that political stability would remain good.

Other areas that would interfere with the sustainability of the II’Ngwesi are such factors like the global climatic changes that would result in droughts and heavy rains that would make the roads impassable and perhaps accelerate wear and tear of the ecolodges.
There could also be other factors like diseases affecting wildlife, poaching and international wars which would interfere with smooth flow of visitors.
Figure 1: Use of local materials for furniture and treated hides for mats

Figure 2: Swimming pool hewn from rock
Figure 3: Scouting at Il’Ngwesi to keep away intruders
Figure 4: Use of local Materials even for beds

Figure 5: Employment of local labour
Figure 6: Structures amidst growing vegetation

Figure 7: Local employee showing visitors the expansive Il'Ngwesi conservancy
Sweetwaters Tented Camp and Game Reserve:
This is one hotel in Laikipia where ecotourism is practiced. The hotel is renowned for its care of orphaned wild animals. It is here that we have a chimpanzee sanctuary, which happens to be the only one in Kenya. This sanctuary hosts orphaned chimps from as far away as the Democratic Republic of Congo, (Hotel Bulletin, 2003).

It is at the Sweetwaters that threatened chimps are brought for caring and a hope of survival before being reintroduced into the wild. This is because exportation of life chimpanzees and the increased demand for wild game meat threatens their survival. The chimpanzees are also threatened by the increased demand for land, which has resulted in the destruction of many forests where the chimps live traditionally.

This 24,000 acres game sanctuary is home to many other orphaned wild animals who have been brought there for caring after being discovered in the wild and sometimes by understanding Kenyans on their farms and who choose not to kill the wild animals and they report the findings to the Kenya Wildlife Service who pick the animals and bring them to the sanctuary.

The game reserve maintains a well-protected environment where otherwise threatened flora and fauna now thrive.

Outside the park, the Sweetwaters has developed a large tree nursery. This nursery is well stocked with both indigenous and plantation trees, which are planted and cared for within the private game reserve. Reafforestation is continuous and some of the endangered indigenous trees continue to be planted and increased here.

The Sweetwaters Tented Camp is also founder member of GOTTSS, which stands for “Growing of Trees Through Schools and Societies”. Through this programme, and in partnership with other organizations particularly the KWS, the camp has assisted in planting indigenous trees far and wide. Direct beneficiaries of GOTTSS are Nyeri Primary School in Nyeri, Makuyu Secondary School in Maragua and Isiolo Secondary School in Isiolo not mentioning the many neighbouring schools and communities.
The tree nurseries also supply the neighbouring community with all types of seedlings and at subsidized rates. This is at an average of 100,000 seedlings per year. This programme of planting trees has been extended to neighbouring schools, which continue to enjoy supply of free tree seedlings. The trees planted so far are as follows:

<table>
<thead>
<tr>
<th>School</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matanya Primary School</td>
<td>80,000</td>
</tr>
<tr>
<td>Irura Primary School</td>
<td>110,000</td>
</tr>
<tr>
<td>Sweetwaters Primary School</td>
<td>130,000</td>
</tr>
<tr>
<td>Mirera Primary School</td>
<td>70,000</td>
</tr>
<tr>
<td>Njoguini Primary School</td>
<td>50,000</td>
</tr>
</tbody>
</table>

Sweetwaters camp also encourages its hotel guests to visit the said schools and plant trees. The same guests are also introduced to the neighbouring community where and when the guests and local communities exchange views and ideas on various topics. Environmental conservation is almost a key topic in these discussions and more often than not ends up with the planting of a "commemorative tree".

When visiting the schools, and particularly when they are in large groups, the hotel guests participate in building classrooms, toilet blocks, roof water harvesting, excavation of water pans and general agriculture and animal husbandry.

There is also a lot of cultural exchanges during these interactions with some friendships being developed to the extent of confirmed future visits with stronger attachments. Some youth exchange programmes have taken place.

Sweetwaters also allows free entry to all children from the neighbourhood. During those visits, the children are given education on different wild animals and the general habitat. This way, children are taught to appreciate biodiversity at this early age.
Further economic benefits take place when the hotel guests buy artefacts. This is done after visits to the curio shops, which are owned by local people. The commonest artefacts that the guests buy are beadworks, necklaces, earrings, belts, sandals, caps and carvings. Other items are like the traditional clothing items like treated leather, which is thudded with beads for ladies and the common shields (photograph number 3). The economic benefits do not end there in that the hotel buys most of its basic needs from the neighbourhoods. These include fruits, vegetables, meat and milk.

The hotel is also interconnected with the local community in its many developmental activities. These include direct contributions in harambees particularly in form of materials and technical know-how. It also participates in health of both human and animals by keeping a fully stocked dispensary where local people are treated. It also participates in the management of local cattle dips and the treatment of the animals mainly because any animal disease outbreak could easily be transmitted to the animals in the sanctuary or in the game reserve and vice versa.

There is also another advantage in that the hotel trains many youths at the hotel and it ends up employing some and getting employment opportunities for others. This programme is also extended in that the hotel extends a bursary programme through which brilliant children or the most disadvantaged children benefits.

Entertainment of guests is exclusively left to the local cultural groups who derive a direct income for this activity. This is almost like full time employment as the groups are also sponsored for outside tours where they perform in other hotels.

The hotel makes a major contribution in the maintenance of the 17 kilometres road linking the hotel to Nanyuki town. This is a murram road and the hotel ensures that it is passable through the year. It therefore becomes the link road for farmers from such far areas as Thome, Matanya, Mirera, Marura and Njoguini.
How Ecofriendly is Sweetwaters:

The Sweetwaters Tented Camp has thirty self-contained tents, which drain into 2 septic tanks. Here bio insects work on the waste, which leaves the tanks stench free (photograph number 11). After this, and except for plastics, the froth is used to irrigate their trees and gardens. There is no run off that would otherwise destroy the environment.

The Camp has dug a well of 120 metres deep from where they extract all their domestic water. This of course is after purification through simple technology.

The tents at the camp have a grass thatched cover. This regulates the temperature inside the tent. To reduce having to cut grass every season/year, the thatch is held together by an all-enclosing wire mesh that holds the thatch together and protects it from damage by baboons and birds. This method reduces the need for any air conditioning while at the same time releasing the grass from continuous cutting (photograph number 8).

Different types of games are played at the camp. These include football, volleyball, netball etc. To reduce trodding of grass on any one spot all the time a game is in session, the camp has mobile games appliances and equipment that can be pitched on the many lawns within the camps cleared areas. This way the camp minimizes the resources necessary to keep the lawns green.

The Camp has a well-stocked staff centre where workers are given meals and enjoy recreation of very high standards at the cost of the hotel. Solar energy is used and where charcoal must be used, they use coffee husks charcoal (photograph number 10).

Occasionally the culverts of the camp to Nanyuki road get clogged mainly after heavy rains. To unclog them, neighbours are used to do that and they are paid 50 tree seedlings for each culvert they unclog.
8. Covering of the tents to regulate temperature at Sweetwaters

9. Use of meshwire to fasten the grass thatch protecting it from animals and birds.

11. A septic tank at Sweetwaters where bionsects are used to break the waste.
How sustainable is the environmental programme at Sweetwaters:

The current management at the Sweetwaters Tented Camp have put in an annual budget of 200,000/= as provision for community environmental development. This is due to the environmental consciousness of the current management at the hotel. The programme is therefore sustainable so long as there are no changes at the Camp or even the overall ownership of the investment.

The existing tree nurseries at the various schools and the other environmental activities by the neighbouring communities are not income generating. They only survive out of the fact that funds to run them continue to flow from the Camp. With a change at the management of the Camp, these programmes would just collapse.

4.2 Conclusion

These two examples confirm that both the local community and the foreign investor can work together and use new and existing tourist facilities for environmental conservation. All it requires is the transmission of environmental knowledge to them.
Tourists being shown the effect of the equinoxes at the equator
Narvuki Town

A sheep farm in Laikipia.
14. Common vegetation in Laikipia
CHAPTER 5
SUMMARY AND CONCLUSIONS:

Southern Laikipia plateau is an area of diverse characteristics and features. On average it has low rainfall, which makes rainfed agriculture not feasible. This leads to the fact that profitable agriculture can only be realized if water harvesting is done through utilization of underground waters from which irrigation would develop. This calls for heavy capital input, which is not easy to come by.

Weather patterns have been changing and with increased population and subsequent land subdivision, agricultural production of maize, wheat and beans have declined by about 50% between 1992 and 2000 (table 2.3).

Similarly, production of cattle and sheep has also declined during the same period. There are however increases in production of goats, poultry and camels (table 2.4).

While agricultural production has not improved as such, and except for 1997/8 during the tribal clashes, the number of visitors has been on the rise. The figure rose from 7,000 in 1992 to 21,000 in 1996 (table 2.5). Tourism earnings have also risen from 14,260,000/00 in 1992 to 24,256,000/00 in 2001(table 2.6).

The ranchers who occupy over 50% of the land have already started wildlife farming. This would lead to increased human-wildlife conflicts. This is more so because the ranches engulf the smallholdings.

The research has confirmed that the smallholders and the pastoralists are willing to practice ecotourism on condition that there are direct benefits. This trend, and considering the abundance of wildlife in the area, calls for further research into the possibility of merging all the stakeholders in a wider ecotourism programme.
Examples of Il’Ngwesi and the Sweetwaters Tented Camp ably conclude that a combination of forces between the white ranchers, the agriculturalists and the pastoralists would bring increased returns from the lands. These joint ventures would reduce activities that destroy the environment and be avenues of further environmental improvement. There are many comparative advantages.

As ecotourism is noted as an input to environmental conservation, impacting of relevant education, specific planning and further research particularly on wildlife migration corridors is necessary.

We have however noted that though the local people have contributed immensely in the conservation of wildlife, the direct beneficiaries of this wildlife are the ranchers who bring in visitors to view the wildlife without involving the local people. It is common to find some ranchers opening their fences to trap more wildlife from migrating routes and fencing them in. There should be better policing on this.

Most top managers of ecolodges are foreigners whose salaries and allowances are hefty. Their employment contracts are also lengthy and the training requirement for locals to take over such jobs is not presumably locally available. This should be streamlined to enable a gradual take over of these management jobs by local people.
REFERENCES:


58
QUESTIONNAIRE FOR FARM OWNERS

1. Name ..............................................................................................................................

2. Age   a) Under 18   b) 18 – 45   c) 45 – 65   c) Over 65.

3. Sex   a) Male   b) Female

4. Home District of origin ..............................................................................................

5. Marital Status   a) Married   b) Single
                  c) Divorced   d) Widowed

6. Level of education   a) No education   Yes/No
                        b) Primary   c) Secondary   d) Beyond Secondary (Specify)

7. Training if any   a) None   b) Certificate Level   c) Diploma   d) Any other
                     (specify)............................................................

8. No. of Children ............... (a) Boys   b) Girls

9. Children in school
   a) Primary
      (i) Boys.............   (ii) Girls.............
   b) Secondary
      (i) Boys ............   (ii) Girls ............
   c) Post Secondary
      (i) Boys .............   (ii) Girls .............

10. Amount of Land owned .............. acres
    (a) Under Livestock ..............   (b) Under Crops Cultivation

11. What is your yearly income from your farm.........................................................

12. What are your main farming challenges:
   a) Size of Land   b) Wildlife Challenges
   c) Low Rainfall   d) Type of Soils
   e) Capital        f) Cattle rustling
   g) Others (specify)............................................................

13. Which is the common wildlife in your area ..........................................................
14. Have you suffered loss due to livestock diseases transmitted by wild animals? Yes/No
15. Is your farm within a known wildlife corridor? Yes/No.
16. Has any member of your household been injured/ killed by wildlife? Yes/No.
17. Have you suffered damage to your property caused by wild animals? Yes/No.
18. Did you get compensation for the loss? Yes/No.
19. How long did you wait for the compensation? ........................................................
20. What are your overall feelings about wildlife? ........................................................
21. What do you think should be done for you to coexist with wild animals? ....................
22. What would you feel if you were ordered to open up the wildlife corridor? ..................
23. What if you and your neighbours were asked to convert your farms to tourist sites where visitors would view the animals during the migration periods? ........................................................
24. What would be your wish if your farm was to be bought off for creation of a game reserve? ........................................................
25. Do you in any way benefit from ecotourism? Yes/No
26. If yes, specify how? ........................................................
27. As a neighbour to a tourist facility describe how you benefit from it ..................
28. According to you, are there any policy issues that hinder development and promotion of ecotourism in this area? Yes/No.
29. If yes specify which ........................................................
30. Given the right information, would you support development of ecotourism in this area? Yes/No.
31. Which is the extent of charcoal burning in your area:
   (a) low  (b) medium  (c) high  (d) excessively destructive

32. What are the main causes of charcoal burning in your area? ..................................................

33. What could be done to reduce charcoal burning in your area? ................................................

34. Do the people who burn charcoal in your area ever participate in tree planting? Yes/No

35. What are the long-term effects of charcoal burning in this area? .............................................

36. Are there policy issues that should be followed to reduce charcoal burning in your area? .................

Name of interviewer .................................................................

Locality of interview ...............................................................
LAIKIPIA DISTRICT (Administrative Boundaries)

Prepared by Central Bureau of Statistics; 1999 Population Census

This map is not an authority over administrative boundaries.
LAIKIPIA DISTRICT
Population Distribution and Infrastructure

Key to Map Features

- Health Facilities
- Towns
- Roads
  - All Weather L.5
  - Dry Weather
  - Others
- Railways
- Towns
- Boundaries
  - District
  - Division
  - Location

Population Density

- 0 - 14
- 15 - 47
- 48 - 95
- 96 - 183
- 184 - 287
- 288 - 420
- 421 - 754
- 755 - 2540

Map Sources

This map was prepared at the Centre for Training and Integrated Research in Area and Land Development (CETRAD) at Jomo Kenyatta University of Agriculture and Technology. CETRAD is an establishment of the Ministry of Environment and Natural Resources and is the National Centre of Competence in Research, Department of Environment and Natural Resources.

CETRAD is located at Naivasha, Nakuru District, Kenya. It is concerned with designing thematic maps, land use planning, and assessing the impact of development projects on the environment. CETRAD also provides training, research, and consultancy services to government agencies, NGOs, and private sectors.

The map shows the population distribution and infrastructure in the Laikipia District. The map features health facilities, roads, rail lines, boundaries, and population density. The population density ranges from 0 to 2540 people per square kilometer.

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Vegetation Map of Lalkipia District (1992)