

**PLANNING AND CONSERVATION STRATEGY  
OF KARURA FOREST, THE CITY OF NAIROBI, KENYA**

**BY**

**ROBERTS J. SIMIYU**

BSC (Maths&Geo) (Nrb), PGDE (KU)

University of NAIROBI Library



0444067 3

**FOR USE IN THE  
LIBRARY ONLY**

**A thesis submitted in part fulfilment for the degree of Master of Arts (Planning) in the  
Department of Urban and Regional Planning, Faculty of Architecture, Design and  
Development University of Nairobi.**

**JULY 2004  
NAIROBI  
KENYA**

## **DEDICATION**

I humbly dedicate this work to my parents: who had a difficult time convincing me to go to school. My immediate family (Praxides, Agatha, Gaudencia, Kevin, Virginia and Sam who was born during the course of study), for their general understanding, dedication and moral support during the whole academic period.

## ACKNOWLEDGEMENT

This research has been completed successfully through the assistance and contribution of a number of individuals and institutions. Special gratitude goes to the Government of Kenya through the Ministry of Lands and Settlement, Lands Department for funding my course of study in the Postgraduate program. I sincerely thank my supervisor, Prof. Robert A. Obudho for his consistent guidance and valuable criticism and constructive comments that helped me develop this study. I also acknowledge the assistance of Mr. Zachariah Maleche, Dr S.V.Obiero and Mr. Evans Mairura Omwenga of the same department for their selfless effort in the guidance process.

I am indebted to the research assistants and the respondents who were interviewed and provided information that led to the development of this study. The Karura Forest officer Mr. Mwadime, Mr. George O. A. Onyiro, Senior Assistant Director Physical Planning, Ms P. Amiani, Assistant Commissioner of Lands, the entire Forest Department Karura officers, also deserve special thanks for offering me the information required for the study.

To Pamela Gekode, Mercy Wambilianga and Ruth Andiva thank you for sparing your time to type this work.

To all the others who contributed in one way or another towards the completion of this work, I sincerely say, thank you. I also appreciate the teamwork efforts of my classmates in the learning process and their positive approach to issues, which made the course period worthwhile. To Wilfred Ochieng, thanks for the assistance you gave me in map making and final editing of the thesis.

The responsibility for any errors of omission or commission in this work is entirely mine.


## DECLARATION

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

Signed.......... Date.....2019/2004.....

**Roberts J Simiyu**  
(Candidate)

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

Signed.......... Date.....4/1/2004.....

**Professor R .A Obudho, PhD**  
(Supervisor)

## **ABBREVIATIONS AND ACRONYMS**

<b>CBD:</b>	Central Business District
<b>CBS:</b>	Central Bureau of Statistics
<b>CON:</b>	City of Nairobi
<b>EMCA:</b>	Environmental Management and Co-ordination Act
<b>FAO:</b>	Food and Agriculture Organization
<b>GOK:</b>	Government of Kenya
<b>H/H:</b>	Household
<b>KEFRI:</b>	Kenya Forest Research Institute
<b>KFWG:</b>	Kenya Forest Working Group
<b>KWS:</b>	Kenya Wildlife Society
<b>LA:</b>	Local Authority
<b>LASDP:</b>	Local Authority Service Delivery Plan
<b>MENR:</b>	Ministry of Environment and Natural resources.
<b>MLS:</b>	Ministry of Lands and Settlement
<b>MOF:</b>	Ministry Of Finance
<b>NCC:</b>	Nairobi City Council
<b>PPA:</b>	Physical Planning Act
<b>UF:</b>	Urban Forestry
<b>UNDP:</b>	United Nations Development Program
<b>UNEP:</b>	United Nations Environment Program

## **ABSTRACT**

The purpose of the study was to investigate the practice of Urban Forestry. This was necessitated by the revelation, from the press and other members of public that the allocation of forest land for other land uses was taking place at a high rate. For along time neither economists nor decision-makers have fully acknowledged the subsistence value of forests or considered livelihood dependence to be a factor in forest conservation. Yet information about domestic forest use values and their role in local livelihoods forms an integral part of forest conservation planning. In spite of the value of urban forestry, it has not been given the attention it deserves. Karura Forest is rich and diverse “island” encircled by even more threatening waves of human and ecological pressures. If we wish to save it, and continue to benefit and profit from essential product and services it provides us, then the forest warrants our urgent and constant attention. Therefore, this formed the basis for the study.

The research used both primary and secondary sources of data. These included scheduled interviews, questionnaire interviews, focus group discussion and key informants.

Findings from this study indicates that the practise of Urban Forestry is done for a variety of reasons, namely to obtain fuel wood, greening effect recreation and climate modification. It also established that contrary to the legal provisions NCC played no active role as regards to UF unlike MENR. The study further reveals major changes in land cover; this includes changes in the proportions of land area under cover from 1, 041 hectares to 564.14 hectares, representing a 46 percent decline in forest cover. The study especially noted that lack of harmony in various Land Laws has led to the forest degradation.

In this respect the study takes particular note that there is forestland use change process from forestry to residential use. The study arrives at the conclusion that land use change in the study area is evolving in such a way to constitute urban sprawl, which should draw special attention of urban planners and conservationists in the study area.

The study makes further recommendations to amend and harmonise the existing land laws and especially those, which are relevant to the practise of Urban Forestry, should be reviewed accordingly to effect this proposal.

The study further proposes that the Commissioner of Lands, Director of Physical Planning, and The Forest Conservator and other similar officers should be given security of tenure so that they are in a position to make independent judgement or decisions without fear or favour.

On a strong note the study proposes that no further change of user should be allowed, the allocated land that has not been developed should be surrendered back to the government and major reforestation programmes be undertaken in the study area.

Finally, the study identifies the need for zoning map, which will form the basis for management of the area based on the conditions of the forest in various zones.

## CONTENTS

Acknowledgement.....	III
Declaration.....	IV
Abbreviations and acronyms .....	v
Abstract.....	vi
List of Maps.....	xi
List of Tables .....	xi
<b>CHAPTER 14 INTRODUCTION.....</b>	
<b>14</b>	
1.1 BACKGROUND TO THE STUDY... ..	
14	
1.2 STATEMENT OF THE PROBLEM .....	17
1.3 Research Questions.....	19
1.4 Objectives of the Study.....	20
1.5 Research Assumption .....	20
1.6 Justification of the study and study area.....	20
1.7 The scope and limitations of the study .....	21
1.8 Conceptual Framework.....	22
<b>CHAPTER 2.....</b>	<b>27</b>
<b>LITERATURE REVIEW.....</b>	<b>27</b>
2.0 INTRODUCTION.....	27
2.1 NATURE OF RESOURCES .....	27
2.2 Resource Management.....	28
2.3 LAND .....	28
2.4 The Land Development Process .....	29
2.5 Factors in Land use Change.....	33



2.6 Land Use and Environmental Conservation .....	35
2.7 The Land Use Planning Process .....	36
2.7.2 Land Use Change Research.....	23
2.8 The Political Economy of Land.....	37

**CHAPTER 3: RESEARCH METHODOLOGY..... 52**

3.0 INTRODUCTION.....	52
3.1 RESEARCH DESIGN .....	52
3.2 Research Methodology .....	52
3.3 Sampling Methods and Sampling size.....	53
3.4 Types of data collected .....	53
3.5 Methods of Data Analysis and Presentation.....	54

**CHAPTER 4: BACKGROUND TO THE STUDY AREA..... 56**

4.0 INTRODUCTION.....	56
4.1 Nairobi in the National and Regional Context .....	56
4.2 Geographical location and Physical features of Nairobi .....	59
4.3 History, Planning and Development of Nairobi .....	61
4.4 Population growth in the city of Nairobi .....	62

**CHAPTER 5: LEGAL, INSTITUTIONAL AND POLICY FRAMEWORK ON LAND AND NATURAL RESOURCES..... 64**

5.0 INTRODUCTION.....	64
5.1 Historical Perspective of planning law in Kenya. ....	65
5.2 Management and Planning Institutions .....	76
5.3 The role of Other Central Government Agencies In Planning. ....	81
5.4 Planning and Development Control practice under the PPA Cap 286 .....	82
5.5 Plan Preparation.....	83
5.6 Urbanization Policies.....	88
5.7 Land Policy.....	90

<b>CHAPTER 6: THE ROLE OF URBAN FORESTRY IN THE CITY OF NAIROBI.....</b>	<b>85</b>
6.0 INTRODUCTION.....	85
6.1 Greening Effect.....	85
6.2 Educational Value.....	86
6.3A Habitat of Wildlife and a place of worship.....	86
6.4 Carving Trees.....	88
6.5 Source of income.....	89
6.6 Source of fuel wood.....	89
6.7 Source of timber and poles.....	90
6.8 Watershed Management.....	90
6.9 Conclusion.....	90

**CHAPTER 7: PLANNING CHALLENGES IN THE STUDY AREA.....**  
**104**

7.0 INTRODUCTION .....	104
7.1 GENERAL EXCISION PATTERN .....	104
7.2 Land Allocation Within Karura Forest.....	110
7.3 Loss of Forestland.....	111
7.4 Institutional Capacity.....	112
7.5 Lack Of Harmony in Existing Legislations.....	114
7.6 Failure to Prepare Guidelines for Land use - A Local Physical Development Plan .....	115
7.7 The Future of Urban Forestry in the city of Nairobi. ....	116

**CHAPTER 8: SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSIONS.....**      **123**

8.0 INTRODUCTION .....	123
8.1 Summary of findings .....	123
8.2 Recommendations.....	126
8.3 Recommendation for future research.....	131

8.4 Conclusion .....	132
----------------------	-----

SELECTED REFERENCES.....	121
--------------------------	-----

APPENDICES.....	138
-----------------	-----

<b>Plate</b> 1:	The problem.....	6
2:	Christmas tree.....	86
3.	Potential for Tourism.....	87
4.	Carving Trees.....	88
5.	Demonstrators clash with police.....	101
6.	An old Land Rover.....	101
7.	Researcher with a Forest Guard.....	101
8.	Forest Degradation.....	110

#### List of Maps

<b>Map</b> 4.1	Location of the city of Nairobi in Kenya.....	45
4.2	Location of study area in Nairobi.....	46
7.1	Original Forest Cover.....	94
7.2	Current status of Karura Forest.....	96
7.3	Land Subdivision.....	97

#### List of Tables

<b>Table</b> 2.1	Population growth rate and projections in Nairobi.....	
5.1	Land Classification.....	53
5.2	Various techniques used as land policies.....	82
6.1	Role of urban Forestry.....	91
7.1	Allocation trends between 1992-1996.....	98
7.2	Reasons for Urban Forestry.....	105
7.3	Reasons against Urban Forestry.....	106

#### List of Figures

<b>Figure</b> 2.1	Nairobi population projections.....	99
-------------------	-------------------------------------	----

7.1	Reasons for change of user.....	105
7.2	Why urban Forestry.....	105
7.3	Reasons against Urban Forestry.....	106

# CHAPTER 1

## INTRODUCTION

### 1.1 Background to the study

Urban forestry is not a new concept, but one, which appears to have growing potential. This is particularly true in developing countries, where urbanization is increasing at a rapid rate and a demographic switch from a predominantly rural to a predominantly urban society is taking place. Although United Nations (1991) indicated that in 1990 only 37 per cent of the total proportion of developing countries was urbanized, it is predicted that by the year 2025 the proportion will be 61 per cent. Already rapid and uncontrolled urbanization in many developing countries is having fundamental social and environmental consequences like floods, pollution and microclimatic change. The role of urban forests in ameliorating this situation might, at first thought, appear to be small yet urban forestry may provide third world town and city dwellers with significant environmental and material benefits.

Urban forests as Green Belts are meant to check the unrestricted sprawl of large built-up areas, safeguard the surrounding countryside from further encroachment, prevent neighbouring towns from merging, preserve the special character of historic towns and assist in urban regeneration among others. The study area as a green belt was meant to check the urban sprawl towards the coffee farms in the neighbouring Kiambu district (NCC, 1973).

The origins of the Green Belt concept can be traced back as far as the sixteenth century but is more usually associated with Ebenezer Howard. In 1898, Howard proposed the idea of relatively narrow 'Country belts' of permanently reserved open land to form a green backcloth to the urban centres. Howard was concerned about the growth and spread of large cities and proposed shaping a pattern of smaller satellite garden cities within the urban region. His green areas were not just 'stoppers' of potential sprawl, however, they created the opportunity for both food production and recreation, roles for the Green Belt, which have always remained subsidiary to their protective function (Herington, 1990).

In most cities where urban forestry programmes exist, financing them is regarded solely as a necessity, as one of the services the municipal authorities provide for residents. For example in Milton Keynes, UK, UF is seen not just as a social investment but as a commercial one as well (Farhana, 1987). From the England nineteenth century industrial philanthropists, the city was a vision of well-planned, attractive with abundant green space instead of the usual squalid sprawl of urban growth with concrete pavements. The UF plays a major role in realization of this vision. Trees are central to an urban centre, not simply the usual roadside plantings and widely spaced trees in grassy parks, but also well-tended woodland plantations carefully dispersed among the housing estates (Farhana, 1987).

The question of the future of urban forests is intimately related to that of the planning system. As observed by Herington (1990 pg 35), "If green belt policy is to become a reality the government will need to strengthen the planning system to ensure that the environment will be protected. Stronger land-use planning would in our opinion be consistent with the growing political salience of "Green" issues reflected by the government's stated desire for greater controls over farming and the 'greening' of business activity".

The competition for land among different uses is becoming acute and conflicts related to this competition more frequent and more complex for example, in Kenya private developers having realized that there is no more government land available for alienation, have now targeted the peri-urban fringe, this include urban forest, open spaces and agricultural land set aside for recreation, ventilation and agricultural purposes by planners. The emerging trend has been that the growth of cities and towns has on most occasions overshot the jurisdictional boundaries of the same cities and towns, firmly lodging itself in the peri-urban fringe or any green belt set aside by the planners. Forests worldwide have been and are being threatened by uncontrolled degradation and conversion to other types of land uses, influenced by increasing human needs like urbanization.

Although the City of Nairobi (CON) has been blessed by an unusually beautiful natural setting, much of that beauty has been destroyed because of lack of firm and

persistent administrative efforts and imaginative forestry planning. Most Nairobi residents are aware that they lived in a city that was much more beautiful than the current urban environment. This scepticism is as a result of the wanton destruction of the urban forest especially Karura forest which has been under severe threat since the 1990s.

Management of forests has been catastrophic, for instance, in 1994 a local farmer filed an application in the High Court to stop the County Council of Kiambu from excising part of Kamiti Forest for housing development. The plea was dismissed on the grounds that under the Local Government Act (Section 144, 145, 177) there was no reasonable ground for concluding that the council was failing in its duty (Liz, 2001).

The moral of the above story forms the central questions of this study, which are really about the success or failure of forest legislation in Kenya and hence the future of urban forests. In the century or so since it has been around, what has state forest legislation tried to do? How well have these laws performed the tasks of helping the country manage and protect their forests?

The weakness in the current legislations may have contributed to the wanton destruction of forests. More than anything else, it is the practice of excision that has put forest in Kenya under severe threat. The Forest Department cannot alone protect forests from excisions. It is the Commissioner of Lands, who is empowered by law to alienate government land. What this means is that he is readily able by his own decision and that of the Minister for Environment and Natural Resources (MENR) to excise which forests he wants, when and for what. And even the law does not necessarily require him to be publicly accountable. It is under this guise that part of Mt. Kenya Forest, Mau Forest, Mt. Elgon Forest and Karura Forest among others has been excised. Improper management and consequent destruction of forests, threatens their critical functions such as carbon sink, prevention of soil erosion, protection of water catchments, wildlife habitat, reducing floods, medicinal value, and recreation functions.

Lately Karura forest has not been spared, it has attracted private developers whose major driving force is profit. These private developers like elsewhere in the country are market driven; they build houses in disregard to environmental implications. The developments imply that a big percentage of Karura forest has evolved from forest use to urban entity within a relatively short time.

## **1.2 Statement of the problem**

Before colonisation and modernisation in Kenya, the percentage of land covered by indigenous trees and shrubs is assumed to have been much higher than today. Forest cover has been changing over time and space. At the end of colonialism, Kenyans forests covered 3.5 percent of the total land area. By 1974 the cover had declined to 3.0 percent and currently it is estimated at only 1.7 percent (Situma, 2001). The reduction has been attributed to various factors such as population growth, change of values and colonial influence. The mode of running and conserving forests during the pre-colonial periods was through traditional decision-making process in which the user had substantial say. For the Karura Forest the forest belonged to **Mbari Ya Kihara**, who had a strong say in the management of the resources through their elders. Destruction and misuse of community resources were guarded by communal rules and traditions, which were part and parcel of the family's culture.

With the entry of the White man the mode of user community participation and the role of local beliefs on natural resources conservation were subjugated. These changes continued to take root well into the post independence era hence the tragedy of common and their results can be clearly witnessed today.

The Protected Area in Karura forest has been reduced substantially from 1,041Ha to 564.14Ha (Mbaya, 2001) and the pressure on its margin is still building up. The period in the 1990s were bad for conservation of this urban forest, encroachments and degradation increased in Kenya fuelled by rapid urbanisation, it should be noted that the study area is under pressure and shrinking at a rapid rate.

The situation is typified in Nairobi where environmental conditions are deteriorating in all areas of the city while the population is expanding rapidly. Nairobi has grown from a population of just 10, 000 in 1906 to a figure that ranges between 2.5 million to 4 million in recent years. During this period, the city boundaries have been



extended three times in 1920, 1927, and 1963. The last extension incorporating Karen and Langata and making the area 690km<sup>2</sup> (Obudho, 1992).

Obudho (1992) forthrightly states ... “the Local Government has failed to cope adequately with the growth of the city. The problem can interalia, be attributed to lack of resources, bureaucratic lethargy, corruption and indiscipline, lack of clear lines of authority and disregard to public opinion”.

Allocation of forestland has taken place in the study area in disregard of the role forests play like controlling pollution, greening the city, wildlife habitat, climate modification amongst others. Despite the value of the forests to the city of Nairobi, given the choice people seem determined to buy as much private space as possible to put up residential and commercial buildings putting the existence of the forests at stake. Hence there is need to examine the role of urban forestry and the institutional framework that govern the land use in order for us to establish how the land use has been changing over time. It would be interesting to discover why land allocation has been undertaken despite the existence of legislations and institutions that are meant to manage the resources and utilise it sustainably.

Many people in urban areas in Kenya who are charged with the responsibility of managing forests do not realize that the problem does not end by stopping intruders. In fact, nearly all management techniques used aims at keeping away intruders as per the Forest Act (Cap 385 section 8).

In most less Developed Counties like Kenya, Urban Forestry is not given a lot of prominence and so excising a forest for residential or commercial development is more paying than forestry as an urban land use (**plate 1**). It is feared that if the trend continues then we may not have forests in future, as even now our forest cover is 1.7per cent far less than the world recommended cover of 10 per cent (Liz, 2001).

### **Plate 1: The problem**



Wanton forest degradation

It is against this background that this study intends to evaluate existing management framework, role of various stakeholders in forest management with specific emphasis on Karura forest. Karura Forest Reserve presents a case where city developments exist in close proximity to the forest. In order to maintain viability as functional land use, the study formulates proposals and recommendations for management policies of the study area. To get a comprehensive insight into the practice of UF a set of research questions guided the study.

#### **1.3 Research Questions**

The study sought to answer the following research questions:

1. What is the role of UF to the city?
2. What should be the role of various stakeholders/actors in the planning and management of UF?
3. What is the strength and weakness of the relevant planning agencies in management of UF?
4. What should be the policy recommendations in planning and management of UF?

#### **1.4 Objectives of the Study**

The general objective was to, examine the current practice of planning and management of urban forestry and propose measures to ensure its sustainability.

The specific objectives of the study are to: -

1. Investigate the role of urban Forestry to the city  
Examine the role and responsibilities played by different factors in planning and management of UF
2. Examine the effectiveness and limitations of planning agencies for the management of urban forestry
3. Recommend a policy framework for planning and management of urban forests.

#### **1.5 Research assumptions**

The study makes the following assumptions;

- i. Urban forests will continue facing the same excision threat, as long as demand for urban land remains high.
- ii. As demand for more land for urban development increases in Nairobi, more effective legal framework would be required.
- iii. The legislative inadequacies may have been exploited to legitimise the unlawful act of erroneous forest allocation.

#### **1.6 Justification of the study and study area**

This study is significantly socially, economically and scientifically because it aims at shedding light on the hidden losses incurred by people when their forest is degraded. Karura not only helps absorb polluting gases and provide much needed oxygen, but it offers opportunities for recreation. At the local level, for the communities in the northern side of the forest, it maintains water supplies and provides minor forest products like firewood, medicinal herbs and honey.

The study deals with land use change within Karura Forest as a result of erroneous land allocation. When one sees forest land from the edge, it appears to be a forest, but not all forest land is covered by trees (**Plate 1**) a lot of it is bare farmlands, others are just bush, because all the trees have been cut, while others are just grasslands. So, it is important to understand that we are facing a disaster, forests conserve water and soil, they purify the air, mitigating climate change and absorption of carbon dioxide, their role in improving agriculture and acting as

reservoirs of biological diversity. A walk in the forest offers bird watching, plant identification and animal life but beware, as it is a notorious haven of thugs who prey for lone walkers.

This study was stimulated by two fundamental observations. There has been an increase in forest excision since 1990s despite the legal/institutional framework put in place to guard against illegal excision. The City of Nairobi is chosen for this study because comparatively it has all the government machinery that could stop illegal forest allocation but this never happened. Apart from being the capital city of Kenya, and the biggest city in East Africa, the City of Nairobi is also the fastest growing city in the region, hence a potential threat to urban forestry. Therefore the study aims at identifying the reasons behind illegal forest allocation and what should be done to save our only indigenous forest located right within the confines of the capital city.

### **1.7 The scope and limitations of the study**

The study covers the entire area of Karura in the City of Nairobi of special interest is the status of UF. That is, the reasons behind its practice, its nature, and the problem faced, the challenges and opportunities beforehand. This in brief is aimed at establishing emerging trends in the change of user of land in urban forests. The presence of these activities is viewed here as a challenge to both the planners and land administrators with regard to urban development.

The focus of the study is on the effectiveness of our legal/institutional framework on planning and management of urban forests. The role of various actors is investigated and the loopholes that have allowed illegal allocation of forestland is investigated.

The study recognizes that coordinated legal/institutional framework is the basis of proper planning and management of our urban forests. It is however important to relate this process to the political and economic interests of the elites and sustained opposition of the local people. In times of administrative weakness on the part of the state local communities and private developers had taken the opportunity to encroach upon protected areas with the ultimate aim of establishing a claim there.

The study faced a number of limitations, which delayed data collection and final compilation of the work. The study was conducted amidst limited resources, time and money. This constrained data collection since it was not possible to hire many research assistants to facilitate faster data collection but the one hired worked around the clock to make the exercise a success. A section of the target respondents of the household were rude, very suspicious and uncooperative. However tactics were devised where some of their own were used for purpose of introduction.

The tight Government bureaucratic red tape was a major limitation, which forced the researcher to obtain a valid research permit to access the much-needed secondary data in Government offices. City residents had negative attitude towards the researcher on the basis that researches bare nothing, but this was eventually overcome after a lot of negotiation and time wasting explanations. Despite all these problems, no efforts were spared to collect the relevant information to draw the conclusions, recommendations and the proposals.

### **1.8.0 Operational Definitions, Concepts and Conceptual Framework**

Urban forestry is a reality that has not been incorporated into theories of third world urbanization. It is an economic activity that has been ignored in analysis of the informal sector since it is thought to deal only with recreation.

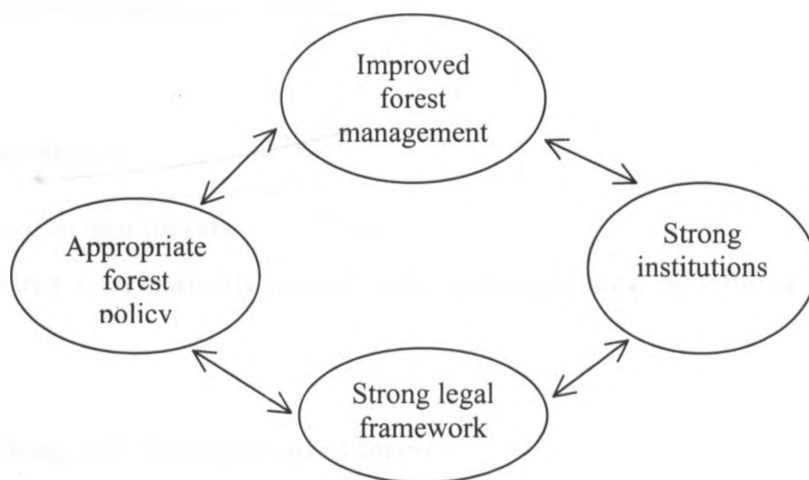
It is therefore, the contention of this study that besides the activity being given little attention, it is comprehensively practiced for Tourism and biodiversity, purification of air among others. In modelling the role of UF it must be seen in the following perspectives namely of:

- (a) Controlling climate by influencing the wind, temperature, humidity and rainfall
- (b) Absorbing, holding and slowly releasing water, reducing erosion and flooding and allowing more water to seep into underground pools and springs.
- (c) Providing wildlife habitats, help absorb some air pollutants and noise, and nourish the human spirit by providing solitude and
- (d) Recreation: Forests and parks have, for many centuries, provided an adequate context for recreation, in both the traditional and modern sense when well managed, it is possible to derive the utilitarian value of forests without causing any environmental harm. However, if such activities go unchecked, it could lead

to destruction of unprecedented scale. Permanent constructions, for instance, could result in fragmentation of ecosystem habitats, destruction of endangered species and destruction of the water purification function. Nairobi arboretum the National Museums Botanical Gardens and city parks in the immediate outskirts of central city area best illustrate a direct relationship between forests and recreation in Nairobi.

To improve forest management requires both appropriate policies and strong supporting and implementing institutions. All these are mutually supportive. Improved forest management contributes to appropriate policy and strengthen institutions. Appropriate policies and strengthened institutions are mutually supportive. It should be noted that unharmonious and ambiguous land and forest policy would lead to weak institutions and hence poor forest management

**Figure 1.1 Conceptual Framework**



**Source: Compiled by Author, 2004**

### **1.8.1 Definition of operational terms**

**Green Belt** - Is an area of open land around a city, where building is strictly controlled.

**Urban Forestry** – It is the management of trees for their contribution to the physiological, sociological and economic well being of urban society

**Stakeholders** – Are all those individuals who have a direct or indirect interests or stake in an activity.

**Urban poor** – The urban poor are considered to be those people who spent less than an equivalent of one US Dollar per day. However, the concept is difficult to define because poverty is multidimensional and their different aspects are not always tightly congruent with each other (Malombe, 1991).

**Planning Law** - This is the existing legislation in the form of parliamentary Acts or Local Authorities By-laws that are used to guide the physical growth of towns and at the same time minimize nuisance. The PPA (Cap 286) is referred to as planning law in this study.

**Urban Centre** - Is any compact and gazetted town with a population of two thousand (2000) inhabitants or more.

## **1.9 Data collected**

### **1.9.1 Role of urban forests**

The researcher systematically looked at the socio-economic benefits of the forest in the city.

### **1.9.2 Planning and Management of forest**

#### **1.9.2.1 Government officers**

The researcher examined and assessed the existing forest legislations and how various government officers, who have a stake in the forest, enforce them. The research looked at the drive behind the allocation of part of the forest to private developers and the status quo.

### **1.9.2.2. Neighbouring Community**

It was very necessary for the researcher to collect data from the neighbouring community to assess their feelings about the presence of a forest in the urban setting of much necessity are the people from the slums of Mathare and Huruma who harvest firewood from the forest, also the Wazungus who do horse riding in the forest. All have an integral part to play in the management of forest. Of much importance is the data on how the community can reap direct benefit from the forest so that they don't look at it as a waste of space for urban development.

## **1.10 Organisation of the study**

The study is divided into eight chapters

- Chapter 1:** This chapter covers the study proposal and contains the introduction, Study issues (statement of the problem), study assumptions and the Study questions. It also details the study objectives, significance of the study, scope of the study, conceptual framework, operational terms, and limitations of the study.
- Chapter 2:** The chapter covers literature review concerning the various issues as they relate to the strategies of urban forestry planning. Other issues tackled in this chapter include general land issues relevant to forest Management.
- Chapter 3:** This chapter gives the research design and methodology. It discusses the issues on how the research was organised, the data types, the data needed, the data collection process, the method of data collection and the organisation of the data analysis process.
- Chapter 4:** This chapter gives details on the background information of the study area. The information covered here included the physical location, geographical, historical and population growth of the city of Nairobi.



**Chapter 5:** This chapter gives details on legal, institutional and policy framework on land and Natural Resources. The chapter gives the inside of how the legal, institutional and policy framework has been misused in the management of urban forests.

**Chapter 6& 7:** These chapter covers analyses of the field findings. They cover the Research field discussions, observation analyses, and the field experiences. The organisation and shape of the chapters is so tailored to be in line with the objectives of the study

**Chapter 8:** This chapter has the summary, conclusions, recommendations, and proposals based on the findings of the study and recommendations for further research.

## **CHAPTER 2**

### **LITERATURE REVIEW**

#### **2.0 Introduction**

This chapter reviews literature related to land and forestry as an urban land use. Land and urbanization is discussed with particular reference to the city of Nairobi. To aid in the systematic development of urban settlements are the land use planning tools. Of significant importance is land zoning regulation where land use succession is given due attention. This is done to reflect on how the practice of forestry can be understood, prior to the field study, land, its features and policies are referred. Studies on UF are also discussed globally, in the context of Africa as well as in Kenya. This is done in view of the legal provision and the likely future of UF.

#### **2.1 Nature of Resources**

The development of any region is dependent on the amount of resources available. This resource endowment will also determine the level of welfare of the people resident in such a region. Man therefore, thrives on exploiting the resources that his environment avails for his use. Zimmerman (1933) observed that neither the environment nor parts of it are resources until they are, or are considered capable of satisfying human needs. The implication of this is that resources are an expression of environmental appraisal and represent a relative and subjective concept. As substance within the environment is then not a resource without people whose wants and capabilities give it its utility.

In 1951, Zimmerman elaborated his earlier statement. He pointed out that natural resources are dynamic, becoming available to man through a combination of increased knowledge and expanding technology as well as changing individual and societal objectives.

Attributes of nature are therefore no more than neutral stuff until man is able to perceive their presence, recognize their capacity to satisfy his wants and then devise means to utilize them (Mitchell, 1989 and Zimmerman 1951). Consequently resources could be said to evolve from a three-way interaction of natural human and cultural assets. Natural resources will be defined by human perceptions and

attitudes, technological skills, legal, financial and institutional management as well as by political customs. Perception of the relative importance of substances thus their ranking as resources will then vary from culture to culture. It is from this perspective that resources are perceived as being finite and yet only limited by human ability to recognize utility and develop technology to improve this utility. The limitations in these then compel man to use his resources wisely, leading to the concept of resource management and conservation. Therefore forest as a resource ought to be planned and managed both for the present and future generation. Land has to be looked at as a resource rather than a commodity. It is a resource that has to be protected for present and future generations. It should be noted however that the "over modification" of land by sectors of our society has led to a shift from emphasizing good planning principles for the good of the present and future generations to emphasize more on short term and selfish economic gains.

## **2.2 Resource Management**

Mitchell (1989), defines resource management as:

"A process of decision making whereby resources are allocated over space and time according to the needs, aspirations and desires of man within the framework of his technological inventions, his political and social institutional and his legal and administrative arrangement."

Resource management should then be viewed as a conscious process involving judgment, preference and commitment. It also involves the seeking of certain desired outputs from certain resources combinations and environmental alternatives. The inelastic nature of land calls for its proper planning and management, which is a domain that must be facilitated by professional Planners.

## **2.3 Land**

Land is a basic natural resource and is the foundation for all human activity. It is the most important resource Kenya has for generating economic resources. Urban forestry as a land use takes place on land. In this way the government and the community at large would be able to control the exploitation of land and the

resources on it as well as ensure that adequate areas are set aside and maintained for sustainable forest use.

The term land lends itself to a variety of definitions Davidson (1980) defines land as the interface between the earth's solid surface and the atmosphere, consisting of all the characteristics of the biological and physical (bio-physical) environment that have influence on land use. To the lawyer, land is the "surface of the earth with everything on it, and over it". In the orthodox definition of it held by economists, land is distinguished from capital and labour because as a factor of production, it exists in the natural order of things and no labor has been expended on its production. To the lawyer especially if he follows the schooling of the English jurists, land is far more than that. The land lawyer looks at the whole thing improved, developed, and worked upon. It includes land as a natural resource, all that nature gives of soil, water, minerals, trees, and vegetation, and in addition all the works of man upon the natural resources. Thus to the lawyers, land means not only the natural soil or waters, the solemn, but all buildings, roads, fences, ditches and all erections which are physically attached to or identified with the soil. The urban and regional planners retain an imperfect view of land as the canvas upon which a plan is presented. Ratcliffe (1976) perceived it as "a broad brush or a mosaic requiring uniformity and control" and argues that land gives man room for his own action, to enjoy the heat, the air and the rain that nature assigns to that area.

### **2.3.1 The Land Development Process**

The land development process starts when urban/economic growth stimulates the need to develop land to a more intensive use. The duration of the development process may vary from a few months to decades and this in itself is partly determined by the ruling land policy. In Kenya there are numerous pieces of legislation governing different aspects of land including its ownership and use.

The main participants in the land development process are the original landowners, professionals such as planners, architects, local and central government officials, the Jua Kali (local) artisans, and the financiers. There is thus a lag and growing number of participants or 'actors' in the land use debate. Complex inter-relations between

them have also evolved attracting considerable attention as to the role that Government of Kenya (GOK) should play in land-use decisions. Most landowners, unlike the planners and surveyors are not professionals and are thus only concerned with land dealing as a business. The result is that a wide variety of unpredictable, sometimes irrational even perverse, behaviors take place.

In Kenya, with not a clear-cut land policy developers and speculatively land brokers may begin to show interest in land in the urban green spaces long before it is actually needed for development. This brings in many transactions in land with future “hope value”. In developed countries like Sweden and Netherlands with firm land policies such as development control and the green belt, such speculative behavior may not hold ground.

As an act of plunder against state resources, large portions of urban land have been steadily apportioned disregarding the purpose they were planned for. For example, land previously reserved for social amenities – even those as vital as schools and hospitals – has disappeared into private hands (The Standard Newspaper, 1991). For example in Kisumu City, according to the mayor, public utility land had been turned into private plots, hindering the council’s planning systems. The widespread practice of irregular land allocation in Kenya may be attributed to lack of a clear consistent urban land policy as well as both greed and the great appetite that Kenyans have for land and property ownership (Olima, 1993).

The issue of rampant irregular land allocation has been highlighted in Kenyan local dailies. The land being referred to as ‘irregularly allocated’ is mainly land that has been earmarked and originally set a side for industrial use or public utilities such as schools, recreation and social amenities, which has irregularly been allocated to private developers to be developed for other purposes. Irregular allocations of public land takes place countrywide and is particularly widespread in forests and other public lands held in trust by the government. During this indiscriminate misallocation of public land, the law is not always followed in the allocation of the land as private developers use either their privileged positions or the name of the Government to corrupt land allocation procedures in an attempt to be allocated land.

It should be noted that the illegal acquisition of public utility land is a much greater problem than portrayed by the media and other non-governmental organizations. The realization that one can make huge profits through the sale of plots has encouraged people to rush and scramble for plots, and currently these plots are available only in urban forests or the national parks that are still considered virgin land.

### 2.3.2 Key Actors In The Land Development Process

Actors often fall into a rather limited number of broad categories specified as

- i. **The Landowner:** The prime mover in any decision about the use of land will often be the owner or his tenant, as a person who is going to dictate by the demand of either Residential or commercial property. According to the theory of perfect competition, the owners will attempt to maximize the return from their land, and will alter the intensity and nature of its use to suit circumstance. Most countries have constraints upon the freedom of owners to inflict injurious spill over onto neighbouring properties through a regulatory structure.
- ii. **Pressure Groups:** These organizations vary widely in their interests, size, resources, influence and methods, but are almost always minorities within the population. Under this, we have conservation and amenity groups like the Green Belt Movement. These are groups that tend to oppose change of user and especially if it is not compatible with the existing or if it will result into environmental degradation like deforestation and these are charitable trusts relying heavily on donations for support.
- iii. **The Professional Advisors:** The most obvious professional with regard to land use is the land user Planner. In Kenya, and for a long time indeed, the Planner has operated mainly through the GOK machinery. The planner in theory fulfils an important role as a balance of conflicting interest as a manager of the urban environment. Planners have too often used a two dimensional approach to land development, viewing it as a matter of zoning, networks and forecasts. However, Planners are generally in favour of planning, which means that they have a bias against allowing the market to determine the use of land. Secondly, they have a professional and possible personal career interest in seeing the adoption and implementation of the plan they produce. Moreover, they are in a strong position to realize this aim, as in most cases

they control the information and options put forward to decision bodies – it is therefore possible to present arguments in such a manner that laymen in the matter will feel unable to dispute the conclusions reached. Nor may planners be independent of political patronage as they appear. In addition to planners, other specialists includes surveyors, architects, quantity surveyors, valuers, and land officers.

- iv. **Government:** The power of Government to regulate land is not unlimited. This is because private individuals and firms own most of the land. There are agencies, Commissions, Ministries, and Local Authorities at the national level who advise on the formulation of land use policy. To a large extent government provides the institutional counterparts of the actors already identified.

### 2.3.3 The Land Use Concept

Clawson (1965) defines land use as man's activities on land. Stamp (1961) defined land use as literally the use that is made by man of the surface of the land. Hague (1987) takes land use to signify the use of land, territorial water bodies as well as the buildings and improvements thereon. He then points out that land use refers to how land and its improvements are used and distributed over the locality.

Land Use is then a relative term with the meaning dependent on what one takes land to be when land is taken as a source of raw material endowed with valuable elements or deposits, then, land use is synonymous with resource use. Often measured in terms of its economic productivity. Land use could also be defined in terms of area and places that provides opportunities to locate various functions. Such as agriculture, urban residential, industrial, recreation and conservation.

Meyer and Turner (1994) noted that five major uses are usually identified, in land use studies, largely because it is for these categories that statistics are readily available; agriculture, forest and woodland, urban land and other miscellaneous land. These broad categories of land use generally comprise the whole of the earth's surface.

Due to increasing human population and changing human needs and aspirations, there is an ever-increasing competition between land uses. This is further compounded by the fact that land resources are finite and intensity of their use is increasing with population growth leading to conflicts between the uses (Bernstein, 1993). There is then need to include adequate information in development planning to minimize conflicts, most of which lead to land degradation and environmental problems.

## **2.4 Factors in Land use Change**

Land use change is a complex phenomenon differing greatly from place to place. The cause of change includes personal choice, legislation, governmental policies and plans, decisions of developers or entrepreneurs, the nature of land itself or the availability of technology to develop the land (Hill, 1989, Edmunds and Kyle, 1994). A land use category set up at one point in time can undergo considerable change when one type of subcategory grows or another is reduced, rendering comparisons overtime more complex than simple observation of maps (Hill, 1989). For example the urban green spaces have been reduced or changed the user completely, hence defeating the purpose for which the resource was planned.

### **2.4.1 Land use Plans and Policies**

Erickson (1995) identified a two-way interaction between land use change and land use policy. While land use change is affected by policies and plans, plans are simultaneously formulated in reaction to existing physical conditions, perceived changes and threats. This cyclical iterative process is inherent in the planning process where plans have the dual functions of reacting to and guiding change. An attempt should then be made to understand not only the regulations impinging on land use change but also the extent to which land use plans respond to and document the variety of land use and its dynamics.

### **2.4.2 Technology in Land Use**

In the evolution of the human species, huge areas of natural land have been converted into agricultural areas. Large areas of forest cover have been cut down for



cultivation and human settlement. Forest and woodlands have also been cleared for wood and other forest products.

Urban expansion has also slowly eaten up agricultural land in what can be described as a land use succession. This process was first driven by the agrarian revolution and its consequent population growth (Poleman and Freebairn, 1973). During the industrial revolution, land use change became a quite different process. At this time, competition between agriculture and non-agricultural land use emerged. With improving technology land gradually became a less important resource for food production and became increasingly used for other purposes like housing, manufacturing, recreation and infrastructure. The global area under crops has for instance remained unchanged in size since the 1950s. This is despite a doubling of the world population and a more than double increase in world food production. The role of technological advancement has therefore a direct effect on how land use change will take place (Tolba, 1992).

### **2.4.3 Personal Choice**

The concept of personal choice in land use decision-making is hinged on the distribution of property rights among landowners and land users (Lier et al, 1994). In many countries, property rights in land have been strongly upheld. Szakal (1994) observes that many private land use decisions will result in external effects as the individual tries to maximize his welfare often at the expense of that of the larger society. Brubaker (1977) noted that component of such property right is land speculation. Many writers have discussed the problem of property rights and land use decision-making. They argue that the problems of degradation can be solved by extension and optional distribution of property rights. The other extreme argues for maximum state intervention and even elimination of private property rights.

Hodge (1990) presents a concept of *alternative property rights* where landowners would have to pay for the right to modify certain land use practices. Elkins (1989) proposes the establishment of a co-operative land bank, which combines individual rights to use land with community ownership of the land itself. While most authors tend to advocate more state control, there are also many who point out that not only

market failure exists but also government failure. Anderson (1982) states that the comparison is between imperfect market solutions and imperfect bureaucratic solutions. The main reason for government failure is that state intervention always depends on political pressure of different groups and not necessarily on the interest of all members of the society.

The other main reason is that of getting adequate information and the costs and logistics of enforcing regulations. Willis (1987) proposes that governments measure the product or service involved and identifies the parties concerned and their preferences. If the tasks are very costly or cannot be performed accurately, he warns that government intervention can leave the community worse off. The conclusion from these analyses is obvious; there is need for a system of property rights and land use decision making that would ensure sustainable land use planning by ensuring the elimination of both market and government failure.

## **2.5 Land Use and Environmental Conservation**

Land use changes are a multi-sectoral process whose trends are influenced by change of technology, population growth and urbanization and changes in lifestyle or consumption patterns. These drive other mechanism such as increased transportation and personal mobility, leisure activities demand for food and other agricultural products and increased demand for energy and natural resources such as oil, coal and wood. These forces are linked to certain alternatives of the physical land surface and its biotic factors. Alterations will be in deforestation, drainage of wetlands and regulation of river water systems.

*In the end, land cover modification can change the regional hydrology, reduce biodiversity and influence bio-geo-chemical cycles or even the climate. They can also trigger soil erosion and increased sediment transport.*  
(Ryszkowski et al, 19991)

Land use change will vary in size, intensity, duration and impact. While changes in agricultural and forestland use often affect large areas, their duration, incensing and even impact maybe short. A forest may be able to generate itself after some years.

Urban land use change on the other hand may cause a relatively permanent land cover change. The effect on forest change may then be more spatially expansive but less intense than that for urban expansion. The impact of such changes may then vary. The effects may also reach further than to the directly affected ecosystems and trigger multiple ecological damage and land use change far beyond.

## **2.6 The Land Use Planning Process**

Land use planning process is a pre-requisite to sustainable development (Habitat, 1994). It has been described as the centrepiece of urban and regional planning, as it is concerned with the best use of land in view of accepted objectives, environmental and social opportunities and constraints (Roberts, 1988). Lovejoy (1973), describes it as the planning for the most appropriate use of land while Chapin (1973) views it as being concerned with the location, intensity and amount of land in various space-using activities. Dent (1988), describes Land Use Planning as a systematic process for guiding land use decisions such that land resources are put for guiding land use decisions such that land resources are put to the most beneficial use while conserving resources for future use.

While the specific objectives of Land Use Planning will depend on the local situation the overall concern should be the formulation and implementation of plans, projects, programmes and policies to reach sound use of land. This should include efficiency of land resources, equity between the competing uses and a balance between short-term and long-term conservation of the resources (FAO, 1994). It then becomes evident that Land Use Planning may be undertaken at any level of government, private individuals and corporate bodies. Samson (1975) describes land Use Planning as a governmental process that directly regulates or influences the use of land not directly owned or directly controlled by the planning agency. This view of Land use Planning differentiates it from Land Management Planning and Land development Project Planning.

A reliable information base is essential for strategic decision-making. Lack of information contributes to problems, among them the disregard of environmental impact of change in land use.

## 2.7 The Political Economy of Land

In Kenya Land is perceived the most valuable resource and therefore the most sought asset. Land has been in high demand both as a factor of production and as a way of accumulating and preserving already acquired wealth. Sustained demand for land in post-independence years has then led to conflicts in the use and management of land. Therefore the need for proper Land Administration and Planning for both current and future generations.

Mzee Jomo Kenyatta best describes the value of land to the Kenyan Social Economic and political life in his book *Back to land*, where he argues that;

*Our greatest asset lies in our land. In land lies our salvation and survival. It is in this knowledge that we fight for the freedom of our country. Whatever our plans for the future, they must spring from a resolve to put maximum production of our land however small the acreage we may possess*  
(Kenyatta, 1964 Pg 52)

Mbithi (1980) further observes that land has been a matter of crucial importance in Kenya not only for economic considerations but also – and more so in regard to culture, existence and ontology. Kenyatta (1978) said this had been so in the pre-colonial era, when land ownership was the foundation rock of the tribal economies. During the colonial era, these were establishment of scheduled areas and African reserves. This led to increase in land problems and the importance of land in the eyes of the African was increased even more. The postcolonial period was then characterized by a scramble for land, which was seen as a dwindling resource. Land is then currently the most sought asset, be it in the rural or urban areas of Kenya (Mbithi, 1980).

Kohler (1987) identifies four functions that land fulfils to the African. These are as a home, contributor to income, reduction in the cost of living and as a form of investment. The crucial point, he notes is that through the acquisition of land, not only the material needs like food or shelter are met but also social and moral needs which in contrast to the material ones do not respond to physiological deficiency but to the desire for self – actualisation.

Kenya extends over a terrestrial area of 582,646 sq. kilometres. However, about 80 percent of this land is either arid or semi-arid and supports only 20 percent of the total national population. The remaining 20 percent of the land supports 80 percent of the national population (Kenya, 1994) with the current population of 28.5 million people, (Kenya, 2000), the average population density on this productive land area is approximately 200 people per square kilometre. The demands that the population puts on the land are therefore many and often create tremendous pressure and user conflicts. Rural and urban human settlements have continued to expand high rates in such high potential areas with major effects on the carrying capacity of the natural environment.

The main urban land use conflict in Kenya is between the physical expansion of towns and retention of existing green spaces and arable agricultural land on the peri-urban fringe. The effects of these conflicts are manifested in many ways, like the allocation of forests to private developers or change of user of agricultural land to urban use. For example Nairobi has continued to expand towards the agriculturally rich Kiambu and Kajiado Districts, and in the recent past the main target has been the urban green space (Karura), which seem to be the only space for human settlement within the city.

However, in the Nairobi metropolitan growth strategy the growth of Nairobi was supposed to be contained by Karura forest to safe the agriculturally rich Kiambu. Karura forest was meant to be a buffer zone between the coffee estates and the built up city and it was the policy of the forest department to conserve these areas around the City of Nairobi for recreation, as well as for commercial purpose (World Bank, 1973).

## **2.8 Planning and Management of Land**

The main law that governs spatial planning in Kenya is the Physical Planning Act Cap286. Prior to enactment of this Act, both the Town Planning Act and the Land Planning Act were used for controlling land use and development on land. These two legislations have been the main guides in land use and environmental

management in Kenya. Other legislation that have influenced land use and environmental management include the Land control Act, (cap 302), the Local Government Act (cap 265), Government Lands Act (Cap 280), Trust Lands Act (Cap 288), Registered Land Act (Cap 300), Registration of Titles Act (Cap 281), Land consolidation Act, Land Acquisition Act (Cap 295), Land Adjudication Act, Survey Act (Cap 294), Water Act (Cap 372), Agriculture Act (Cap 318), the Forest Act (Cap 385), Environment Management and Co-ordination Act, 1999 of the Laws of Kenya and the Kenyan constitution.

The Physical Planning Act has established the Office of the Director of Physical Planning, who is the Chief Government Advisor, on all matters pertaining to Physical Planning. Depending on the type of plan prepared, the responsibility for approval of plans rests with the Minister of Lands and Settlement and Local Authorities.

The Act in section 29 stipulates that development control measures can be taken in order to ensure compliance with the plan's proposal and requirements. Section 29 states that each local Authority shall have the power: -

- (a) "To prohibit or control the use and development of land and buildings in the interests of proper and orderly development of its area.
- (b) To control or prohibit the sub-division of land or existing plots into smaller areas...
- (c) To reserve land and maintain all the land planned for open spaces, parks, urban forests, and green belts in accordance with approved physical development plans".

On the other hand land use administration and management in Kenya, is vested in the Commissioner of Lands who in day-to-day operation regulates the activities of lessee's/grantees and licensees of land. The Commissioner of Lands is empowered by law to ensure proper and sustainable utilization of land. In particular, the Department performs some of the following functions: -

- (a) Alienation of all government and Trust lands under the provisions of Government lands Act, (cap 280) and the Trust Land Act (cap 288).

- (b) Preparation, registration and issuance of titles for all categories of land falling under different Land Acts i.e. Registered Land Acts (Cap 300), Government Land Act (Cap 280), Registered Lands Act (Cap 281), LTA (Cap 282) and Sectional Properties Act, of 1987.
- (c) Examination and approval of building plans and changes of user in respect of all categories of land and extension of lease in respect of Government leaseholds in consultation with other relevant authorities.
- (d) Registration of transactions on land.
- (e) Setting a part of land under the Trust Land Act Cap 288 for purposes of compensation in case of private land in Trust land areas.

The pieces of legislation that cater for certain aspects of sustainable land use and conservation of land resources lack integration of both policy and practice. This has mostly arisen due to the numerous institutions and roles they are given by the many legislations. Consequently enduring institutional conflicts and lack of co-ordination of effort has led to no clear roles and hence conflict.

## **2.9 Perspective of Urbanization**

In 2000, world population reached 6.1 billion and is growing at an annual rate of 1.2 percent of which 47 percent of this population was urban (UN, Habitat, 2002). UN, Habitat estimates that more than half this population will be living in urban areas by 2008 and it is also expected that by 2030, 60 percent of the world population will live in urban areas. It should be noted that, almost 180,000 people are added to the urban population each day (UN, 2002).

The population in urban areas in less developed countries will grow from 1.9 billion in 2000 to 3.9 billion in 2030. Though Africa is predominantly rural, with only 37.3 percent living in urban areas in 1999, with a growth rate of 4.87%, Africa is the continent with the fastest rate of urbanization. Obudho (1982) observed that although Kenya is still predominantly rural, there is a high tendency towards urbanization. He further reports that the annual rate of urban population increase was 0.2% during 1948 – 62 and 0.5% during 1969 – 79. At the time of the first

Kenya population census in 1948, there were 17 towns with aggregate population of 276,249. By 1962, the number of towns had doubled to 34 and urban population increased to 670 950, with an urban growth rate of 6.6 percent. This represented the urbanization level of 7.7 percent. According to the 1969 and 1979 population census, there were 48 and 91 urban centres respectively. During the 1962 – 69 intercensal periods, the urban population doubled. The population grew from 670,650 in 1962 to 1,082,437 in 1969, increasing at a rate of 7.1% p.a. In 1969, urban dwellers represented 9.9% of the total population 1979 population census indicated a urban centres with an urban population of 2,238,800. The level of urbanization had risen to 14.6% representing more than a doubling of the total urban population in about 10 years. The rate of urban population grew at a rate of 7.9 percent per annum during the 1979 – 79 intercensal periods.

It is from the foregoing discussion that Obudho (1982) justified that the rate of urbanization in Kenya is among the highest in the world. He clarify that while the estimated annual rate of growth of the urban population in Kenya is at 7.05% for the period of 1995 – 2000, the average for African cities is 4.37% and 2.5% for the world. This has led to demand for urban land hence a threat to urban forestry.

### **2.9.1 Urbanization trend in Nairobi**

The City of Nairobi (CON) presents a typical case of a city with its origin dating to 1899, a time when Uganda Railway reached the present site of Nairobi (Ndwigah, 1988). The same year Provincial Headquarters was Trans located from Machakos to Nairobi, thus making the latter the official capital of Kenya protectorate in 1908 after having become a township in 1903. In 1919 Nairobi was elevated to municipality status. By 1930 Nairobi was already a settler capital with a total population of 30,000. Ten percent of this population was the Europeans who occupied 42 percent (103 hectares) of the total area of the then Nairobi municipality, for residential purposes. Asians though they comprised 30 percent of the total population lived in 5 percent of the area (Kiamba, 1986).



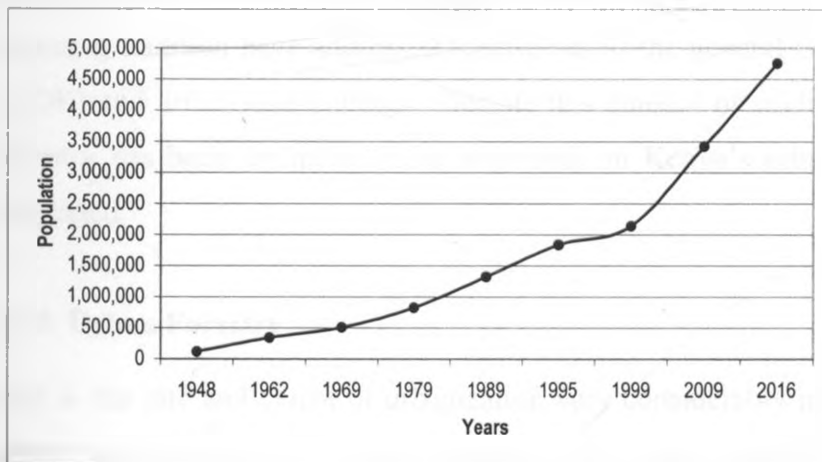
The City of Nairobi has had high population growth rate averaging over 3 percent per annum (see table 1 below). These high population growth rates of Nairobi led to her boundaries being extended from its time of inception through 1993.

**Table 1: The population of Nairobi, its growth rates and projections**

YEARS	POPULATION	%GROWTH RATE
1948	118,794	7.5
1962	343,500	6.0
1969	509,286	6.9
1979	827,775	5.0
1989	1,324,435	4.7
1995	1,840,406	4.7 (projected)
1999	2,143,254	4.8
2009	3,425,204	4.8 (projected)
2016	4,755,710	4.8 (projected)

Source: (Kenya, 2000) population census

**Fig 2.1 Nairobi population projections (1948-2016)**



Source: (Kenya, 2000) population census

This rapid urbanization trends has proved a threat to the UF since early 1990, such that the land, which was initially set aside for forestry, is slowly changing to other users. Zoning in Nairobi was introduced in 1926 just before the first land use legislation was formulated especially the one of 1931 – The Town Planning

ordinance. In addition to zoning the planning by laws (1948) are also practiced (Akatch, 1993). The zones that were created in the municipality according to their current and potential uses had detailed rules to control in the use, type and intensity of development. The zones have over time since its introduction, been added and re-organized. The 1979 Nairobi's City Council re-organization of the entire city structure was major one since 1948. Of significance is the way various land uses succeed each other. Residential land use at one level got pushed out of the Central Business District that in turn became a purely commercial zone. What can be noted is that forestland has been getting invaded first by residential then progressively by other uses such as commercial land uses. The scenario created is that urban forest is being depleted at an alarming rate. UF has thus since the commencement of urban planning, suffered irreparable damage whose magnitude is immeasurable. In addition to this, even in residential development let a lone in urban proper there has never been a provision for some level of forestry as can be said of the other land uses in Nairobi. Instead forestry is regarded as a public purposes use, hence doesn't come out clearly as one of the urban land uses.

A number of studies in regards to urban land policies and their relationship to development have emerged overtime. These studies in addition to the current planning tradition have addressed themselves to the general Government of Kenya (GOK) and urban land policies. Despite this amount of studies, the subject urban forestry has been for many years, especially in Kenya's urban land use planning neglected.

### **2.10 Urban Forestry**

Just as the rate and extent of urbanization vary considerably in the third world, the nature and character of urban settlements also vary according to the individual culture, politics and past history of different countries. This is reflected in urban forestry practices, with some countries having a long history of urban tree cultivation.

### 2.10.1 Urban Forestry Globally

In industrialized countries urban forestry is concerned primarily with environmental enhancement. Even countries like Germany, where timber is harvested from peri-urban forests, the major management objective is providing recreation/education of the urban dweller, and timber-harvesting operations are significantly modified accordingly. Largely having been concerned initially in terms of landscape improvement and amenity provisions, UF is now increasingly concerned with other additional benefits, such as the control of air and noise pollution, and microclimatic modification. In developing countries urban trees have the potential to provide a greater variety of goods and benefits both in terms of environmental improvement and material production (fuel, timber, fruit fodder, etc).

In Japan, parks like Yokohama and Yamata give urban residents an opportunity for relaxation, recreation and the appreciation of beauty, but they also have another special function, they are vital open spaces where people can take refuge in the event of earthquakes.

In Singapore according to Hague (1987), the early 1960's saw Singapore population mushroom; they also brought a firm commitment to make this world trade and tourist centre a garden city, a green metropolis. Since there were then relatively few trees within the city proper, the Singapore Parks and Recreation Department had to undertake a massive effort to achieve this goal, and they managed to create the concrete jungle.

On the other hand in Brussels, the forest of the sun; the Belgian Gauls believed it to be a sacred place and named it after the sun. Charlemagne walked here in 804 with Leo III, the pope who had crowned him emperor, over a thousand years later residents and visitors can still stroll a long one of 20 different walks through the Soignes forest on the outskirts of Brussels. Whether they realize it or not, they are the beneficiaries of urban forest management which goes back not decades, but centuries. The Soignes Forest may well be the oldest public park in Europe. During the Middle Ages, it was a wildlife preserve; unlike many feudal woods, it was not forbidden to the people who used it, among other purposes, as a refuge in times of

invasion. The managers of the forest sold part of the forest in 1843, but the government insisted that half of the forest of the sun be retained and 4,369 ha. of this forest remain intact to this day.

The City of Windsor, just across the river border from Detroit, Michigan, incorporate seven smaller communities interspersed with the remnants of market gardens and abandoned farmlands. Before the municipality hired its first urban forester in 1970, the area's tree cover was poorly managed and vulnerable to disease and insect attack now, however, Windsor has a carefully planned, well-managed urban forestry system with 600 ha. of municipal parks and a closed canopy of mature trees along 1,000 km of streets. Trees occupy almost 20% of the city total space. While the Windsor urban forestry programme is primarily designed to enhance the city's microclimate and attractiveness, trees also provide a limited income. Since 1976, logs from removed trees have been sanctioned for firewood; all chips produced by trimming operation are used to cover natural trails, tree areas and some shrub beds in the 44 ha. Ojibway Park (Haque, 1987)

### **2.10.2 Urban Forestry in Africa**

Urban forest management in Kampala, the Capital of Uganda, focuses primarily on the expansion and maintenance of fuel wood plantations to meet the increasing demand for firewood and charcoal as the urban population grows and imported Kerosene becomes more expensive. An important but secondary activity is the establishment of ornamental trees. Scattered throughout the city and on the periphery, these plantations of wood – lots supply not only fuel wood but also building poles and fence posts. All plantations are established and maintained by the forest Department that acts on behalf of Central government and it is responsible for the sale of all firewood and poles from these plantations. The introduction and maintenance of fruit and ornamental trees is the responsibility of Kampala Municipal Council, which has formed a Department of parks headed by a park superintendent.

Haile, (1991) notes that urbanization began in Ethiopia around the turn of the 19<sup>th</sup> century, during the reign of King Menelik II (1890-114). With the cities need for

wood fuel and construction timber, deforestation in their hinterland became an increasing problem, and initially forced the relocation of Menelik's capital several times. When he based himself close to the present location of Addis Ababa, a system of controlled harvesting of the nearby natural forests was introduced. Menelik ordered the distribution of 100 seedlings to each resident, who was required to plant, tend and utilize them. It is fuel wood, and that large landlords took over the management and control of plantations.

Investigations showed that the vast majority of the people were "amazing conscious about the value of the forest. A large number of them indicated the fact that trees are not only useful as source of income, fuel wood and construction material but essential in protecting the soil from erosion, giving the land its green beauty and attracting rain" (Haile, 1991:19)

## **2.11 LEGAL AND POLICY FRAMEWORK FOR THE PRACTICE OF URBAN FORESTRY IN KENYA.**

### **2.11.1 Policy Framework**

Our policy and legislation on Land tenure and natural resource management impact directly and indirectly on the planning and management of forests. The legal provisions for protection and management of environment and forests are scattered in 77 statutes (UNDP, 1998). The existing legislation on natural resource management, including forests, is structured around a governance system that is defined by the constitution.

### **2.11.1 Planning Issues**

Whereas planning for UF is supposed to be considered as one of the land use in an urban centre, it has been given less attention in our policy formulations. Little is mentioned about UF and how it is supposed to be incorporated in the plan.

### **2.11.2 Institutional Framework**

Shomn (1970) noted that President J. F. Kennedy in a major policy message to congress in 1961 stated, "Land is the most precious resource of the metropolitan

area. The present patterns of haphazard suburban developments are contributing to a tragic waste in the use of a vital resource now being consumed at an alarming rate". In 1965 President Lyndon B. Johnson in his statement for the union management congress, called for a "massive effort to save, the countryside and establish – as a green legacy for tomorrow more large and small parks, more seashores and open spaces that have been created" (Shomn, 1970). In Kenya, the MENR is responsible in formulating of policies for the forest sector in collaboration with other Ministries, including Ministry of Lands and Settlement, Ministry of Agriculture and Ministry of Local government. Each Ministry has a role to play in the management of forests. The authority to gazette/degazette a forest lies with MENR. The management and policy implementation is done by the local authority and the Forest Department (FD) however they lack the institutional capacity to undertake preparation of development and action plans to form the basis of adequate funding from the central government. A part from having incapacity to undertake the above policy action, they legally violate the same facilities by allowing illegal encroachment of land reserved for forest use. The summary of institutional framework is as shown in the table below.

### **2.11.3 Legislation**

#### **2.11.3.1 The Constitution**

For example, Chapter IX of the constitution stipulates, that Trust Land shall be vested in Local Authorities for the benefit of communities resident in the area. It also outline the conditions and procedures under which Trust Land may be set a part for other purposes, through an Act of Parliament or through a request from the President. This setting a part may be for the purpose of public utility, for prospecting of minerals, or any other purpose that a county council may deem to be of benefit to the people resident in its area of jurisdiction. But we are not told what exactly is the benefit, hence making leeway for illegal allocation to take place.

#### **2.11.3.2. The Government Lands Act, Cap 280**

For instance, the Government Land Act, Cap 280, section 3 gives the president powers, subject to any other written law to make grants for dispositions of any estates, interests or rights in or over unalienated Government Land" These powers

also extends to forest reserves, because these are administered under the Government Land Tenure.

### **2.11.3.3. The Physical Planning Act Cap 286**

Section 29 of the Physical Planning Act, states that each Local Authority shall have power, to reserve land and maintain all the land planned for space park, urban forests, and green belts in accordance with approved physical development plans, there is no provision for protection from the would be private developers.

### **2.11.3.4 The Forest Act, Cap 385**

A declaration under section 4(i) of the Forest Act cap 385 that a forest shall cease to be a forest area ought to precede any settlement or alienation of such land in accordance with provision of the Government lands Act. Unfortunately in practice the Gazette Notice comes after the event – that is after cessation of forest area and after allottees have built homes, schools or shops.

### **2.11.3.5 The Local Government Act Cap 265**

The Act empowers local authorities to regulate and control any activities taking place within the area of jurisdiction through enactment of by-laws, provided they are clear of contradiction for any parliamentary legislation. Kenyans will recall that when in 2001 the Government expressed its intention to excise 68,000 hectares of indigenous forest then Environment Minister took refuge in the assertion that 90 percent of the forest areas he intended to excise was already settled land, where even title deeds had been issued (standard 10<sup>th</sup> March, 2003). In other words, the Minister was effectively saying that whatever the law may say about procedure of excision of forestland, the government could overlook the law and issue title deeds to legitimise unlawful allocation of forestland.

There are concerns as to the legal inefficiencies of Kenyan land law to protect our forests. Referring to section 54 of the Trust Land Act, which protects officers, Kamuaru notes that:

Instead of the Trust Land Act guaranteeing access to justice for the people it is supposed to protect, various provisions of Kenyan land law serve to limit

this by protecting Government officers and those who obtain land illegally from liability arising from their actions (Kamuaro, 1998)

Most pernicious is the protection given entitlement through the Registered Land Act (Cap.300). Section 143(i) makes a first registered owner immune to challenge no matter how he or she obtained the property this section prevents 'rectifications of the register' even if the title has been 'obtained, made or omitted by fraud or mistake.

The timing of cap.300 suggests this clause was designed initially to secure white settler properties from challenge on grounds that their original allocation was dubious. Such shortfalls in the law share a more fundamental shortfall in constitutional guarantees of private property (s.75), in reality it is not private property, which is considered sacred, but title deeds. Untitled rights in practice have little protection of such realities; the excision of forestland has taken place because of this limitation in the existing legislations.

It is out of the issues resulting from application of the various Acts that we note the loopholes, in essence these do not clearly state how our forests should be planned and managed. Furthermore, policy and legislation concerning forests is articulated in several Acts that are not adequately harmonized. For instance, issues of management and co-ordination have special significance for forests situated on Trust land, under the jurisdiction of local authorities. But the forests and in any case forestry is not commonly perceived as an important activity by the councils. Therefore there is need to address the loopholes in the existing policy framework to stop forest destruction and degradation.

### **2.13 Background to Karura Forest**

Historically, Karura Forest belonged to **Mbari ya Kihara** family that resided next to and considered the forest near Kiambu town sacred it is believed that the family deliberately preserved and conserved the forest, which acted as a wind barrier. As a matter of fact, women were not even allowed to collect firewood from it. When the British colonialists came to Kenya, they were attracted to the alluring nature of the forest. The first thing they did was to enter into an agreement with the Kihara family to acquire some of the forest as long as they also conserved it.



The elders, trusting the British colonialists, ceded some of the forest in the hope that the British would keep their word of not only preserving the forest, but also that they would in the end return the forest to the family. While it is true the British partly conserved the forest, they also cleared part of it, which is today the old Muthaiga, that is home to some diplomatic missions and a wealthy class of Kenyans. When the British cleared off some of the indigenous trees, they replaced them with pine, eucalyptus and the Christmas trees (cypress). Karura forest was declared a Government Forest Reserve early in Kenya's colonial history to both protect a relatively rare type of evergreen forest and to provide a "green lung" for what was seen as a rapidly growing city.

Karura Forest is the catchments area for Thigiri, Ruaraka and Gitathuru rivers, home to Sykes monkeys, rare bush pigs, antelopes, caves and hundreds of birds species hence a potential tourist attraction site.

Planning for urban forest land in Kenya has become vital for the future and present generations to enjoy this facility for either recreation, scientific or educational.

The influx of population and increased number of settlements in urban centers has endangered the urban forest in its natural state. The problem of degradation will accelerate to critical proportions unless strict measures and efforts are initiated. Land use planning will be necessary to integrate the competitive needs on areas surrounding the urban forest land to make it rational.

When challenged in parliament in late 1998 to disclose the facts on Karura, the Minister of Lands confirmed that 64 companies had been allocated a total of 564.14 hectares (Sunday nation, May 1998). Investigation of public records showed that excision of Karura forest had been made gradually over a number of years since 1994. The Commissioner of Lands had been careful to exclude these from the entitlement he had delivered under pressure to the Forest Department in early 1994 (Mbaya, 2001). That is, the Commissioner of Lands secured personal control over half the forest, offering the Forest Department secure tenure only over the remainder.

The powers given to the Commissioner of Lands to dispose of GOK Land and without necessarily limiting these to public benefit rendered the excision perfectly legal, although there was no public auction as stipulated in Government land Act (Cap 280, sec 12 and 13). For foresters a good part of the problem lies with the fact that as forest administrators, not owners of state land, they do not in fact possess the power to halt excision and reallocation of forest parks or reserves.

In view of the foregoing, this study intends to establish the status and hence the future of urban forests in urban areas. Emphasis is placed on the existing legal/institutional framework in planning and Management of the forests.

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

#### **3.0 Introduction**

This section presents the research design and the research methodology. It discusses the issues on how the research was organized from the beginning, followed by the data types, the data needs, and the organization of the data collection process. The chapter further discusses the data analysis process and presents the tools of data analysis.

#### **3.1 Research Design**

Formulation of the study problem preceded the study process. The process of data collection was followed by data analysis and data presentation. Data collection began by a reconnaissance survey of the study area. This assisted in the shaping of the problem and the research objectives. Of more importance, reconnaissance survey guided the formulation of the research tools and designing the sampling procedure and field survey. Data was collected from both primary and secondary sources. This research tools were designed for Forest Officers, Physical Planners, NGO's, the neighbouring communities who benefit from the forest and the City Council of Nairobi. The Ministry of Environment and Natural Resources (MENR) is integrated in the research as the policy formulating institution.

#### **3.2 Research Approach**

This section provides insight into the procedure and guidelines used in collecting, analysing and presenting data in accordance with the set research objectives. The first step of this study was to do a through review of past studies on planning and development control in similar green spaces. The literature from this review gave the researcher a clearer perspective and deeper understanding of the study problem. The second step was a familiarization tour of the study area in order to have good background knowledge of the area. The third step was to administer the pre-survey questionnaires with a view of testing their applicability and relevance in the field. The fourth step consisted of on-the spot field observations and diagnosis, interviews with small sample of households in the vicinity of the study areas as well as in depth interviews with key informants such as government/local authority officials,

protected area administrators and NGO representatives. The fifth step was to analyse data, by validating it so as to easily interpret the outcome.

### **3.3 Sampling Methods**

Sampling was done on the basis of information given by the forest officer in charge of Karura forest on the people who in one way or another are beneficiaries of the forest resources in the area. **Random Sampling** was applied to select specific individuals who collect fuel wood from the forest. **Purposive Sampling** was applied in selecting specific individual such as the key informants and government officials who were relied upon for accurate information.

### **3.4 Types of data collected**

This research collected both primary and secondary sources.

#### **3.4.1 Primary data sources**

- (i) Direct field observation by the researcher and recorded by the use of a field notebook, base map and a camera. As much as possible, the researcher sought to verify all the information provided by making field observations. Some of the issues that could be observed directly included conflicting land uses, extent of forest excision and environmental problems.
- (ii) Personal interviews of a selected sample respondents of people residing in the forest and the neighbouring community using standard structured questionnaires.
- (iii) Focus group discussions and open discussions with selected personalities and groups, to supplement information in (i) and (ii) above.
- (iv) Guided interview administered to various public officers including Physical Planning Officer, Land Officer, Forest Officer, and Green Belt Movement Personnel and City Council Officials. The questions asked shed light on the institutional framework, forest excision, existing planning policies or any public policy concerning green space issues.

#### **3.4.2 Secondary data sources**

Not all the information could be obtained from the field, therefore the researcher looked at secondary data source from records, publications, and magazines among others. Relevant information, documents from Kenya Forest Research Institute (KEFRI), Kenya Wildlife Services (KWS), United Nations Environmental Program (UNEP), Kenya Forest Working Group (KFWG), existing laws and forest department was extensively used to compliment information collected in the field.

### **3.5 Methods of Data Analysis and Presentation**

Secondary and primary data was analysed through quantitative and qualitative methods in order to avoid bias involved in each method. Qualitative methods provided the in-depth explanation while the quantitative methods provided the hard data needed to meet required objectives. Presentation is in form of graphs, pie charts and tables. Case studies were also used to draw out special areas that were not captured in the household questionnaires or the in-depth interviews.

**Table 3.2 Analytical framework**

Research objective	Specific questions	Type of data	Techniques of data analysis	Expected results
1. To Examine the role of various stakeholders in Management of UF	What role does various stakeholder play in managing urban forests.	<ul style="list-style-type: none"> <li>• H/Hold questionnaires</li> <li>• Institutional questionnaires</li> </ul>	<ul style="list-style-type: none"> <li>• Tabulation descriptive</li> </ul>	To inventories the stakeholders and establish relevant roles.
2. To find out the factors that encourage the practice of UF & its role in the city	What factors contribute to the practice of UF in the city?	<ul style="list-style-type: none"> <li>• Hold questionnaires</li> <li>• interview schedules</li> <li>• Observations</li> </ul>	<ul style="list-style-type: none"> <li>• Qualitative analysis</li> <li>• Description analysis</li> <li>• Behavioural analyses</li> </ul>	Explanation of the observed relationship recommendation of policy remedies.
3. To establish the existing legislation on land ownership, use of the level of awareness of planning law & local authority by-law	<ul style="list-style-type: none"> <li>• What are the existing legislations related to land ownership &amp; use?</li> </ul>	<ul style="list-style-type: none"> <li>• Interview schedules</li> </ul>	<ul style="list-style-type: none"> <li>• Qualitative &amp; quantitative analyses</li> </ul>	<ul style="list-style-type: none"> <li>• Improved policy implementation &amp; human behavioural attitudes on forest mg. Practices.</li> </ul>
4. To investigate the level of enforcement of the existing planning laws & by-laws	<ul style="list-style-type: none"> <li>• What is the level of enforcement of the existing plan laws &amp; by -laws related to UF</li> </ul>	<ul style="list-style-type: none"> <li>• Interview</li> </ul>	<ul style="list-style-type: none"> <li>• Quantitative</li> </ul>	<ul style="list-style-type: none"> <li>• Improved policy</li> </ul>
5. To suggest how UF can be integrated in land use plan in the other centres in Kenya	<ul style="list-style-type: none"> <li>• How can urban forest be integrated in the urban land use system?</li> </ul>	-Primary data on: <ul style="list-style-type: none"> <li>• Key actors in forest mgt</li> <li>• Mgt by CBO's</li> <li>• NGOs,</li> <li>• Neighbouring communities</li> </ul>	<ul style="list-style-type: none"> <li>• Quantitative of quantitative analysis</li> <li>• Descriptive analyses</li> </ul>	<ul style="list-style-type: none"> <li>• More efficient &amp; user friendly urban forest by adjacent communities</li> </ul>

Source: Author's Framework 2004

## **CHAPTER 4**

### **BACKGROUND TO THE STUDY AREA**

#### **4.0 Introduction**

This Chapter gives an analysis of the study area.

It starts by looking at Nairobi in the National context, its geographical location and physical features. The Physical aspects covered include location, physical features, physical base, Geology and soils, climatic features and Drainage. The Chapter also looks at environmental aspects, history, planning and development in Nairobi. Finally the chapter closes by looking at the population growth in the city of Nairobi.

#### **4.1 Nairobi in the National and Regional Context**

Nairobi is the capital city and one of the eight provinces of the Republic of Kenya. Nairobi is situated at the junction of the Aberdare foothills and the Embakasi plains at an altitude of 5,490 ft above sea level. The city lies astride the main road and rail routes from Mombasa at the Coast, Uganda to the West and Sudan, Ethiopia and Somalia to the North as shown in map 4.1 Nairobi's birth is attributed to the establishment of a base camp by the Kenya-Uganda Railways, prior to the construction of the long climb up the Kikuyu and Limuru escarpment, at the turn of the 19<sup>th</sup> century.

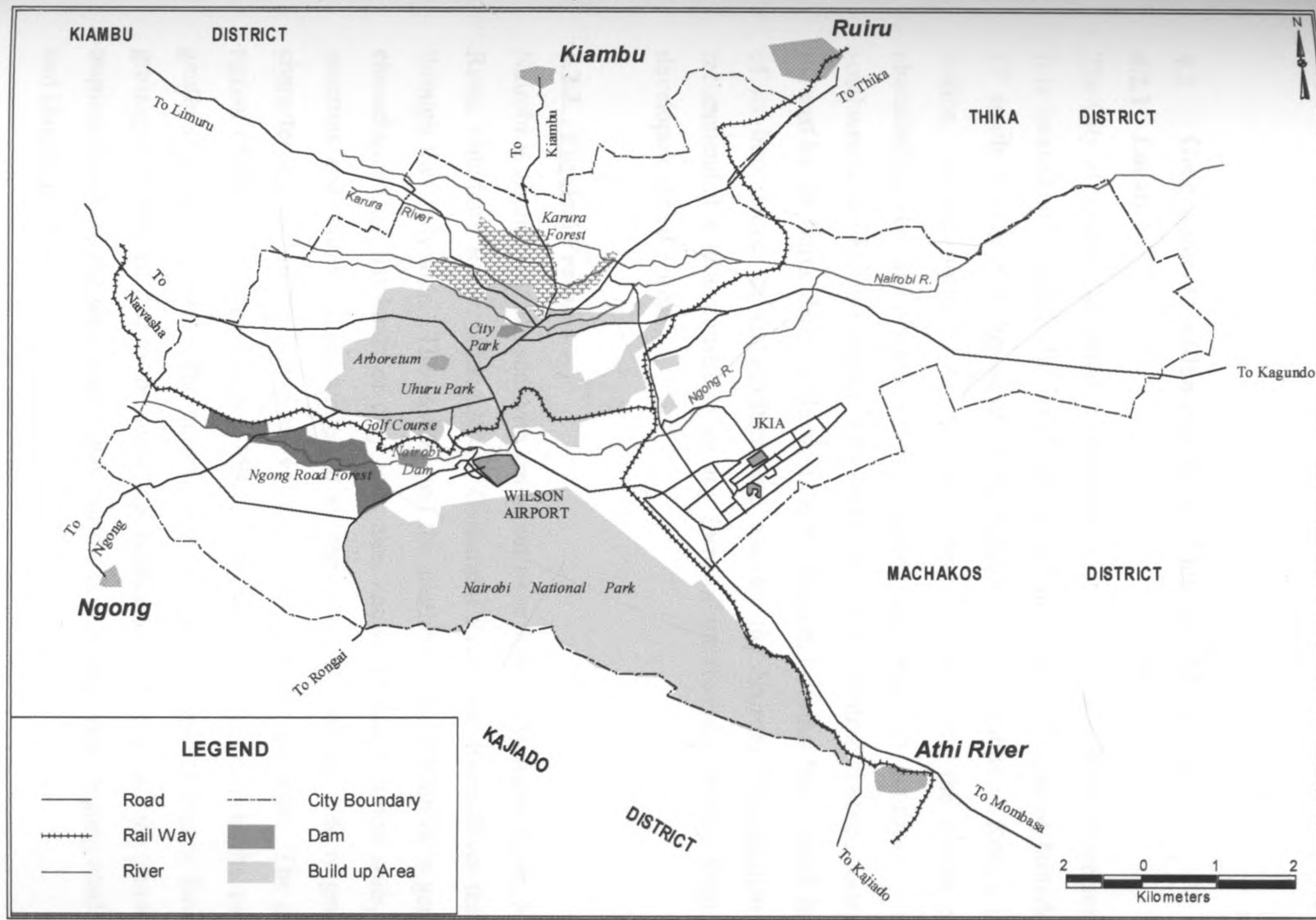
A century ago, Nairobi was nothing but swampland. Game roamed freely across the plains and the only inhabitants of the area were the Maasai with their cattle. To the Maasai this enormous mass of swampland was known as Enkare Nyorobi (a place of cold water). The name was later to be modified by the colonialists (for simplicity of pronunciation) to Nairobi.

Map 4.1 Location of the City of Nairobi in Kenya





Map 4.2: Location of Study Area in Nairobi



Source: Survey of Kenya, 2000

## **4.2 Geographical location and Physical features of Nairobi**

### **4.2.1 Location**

The City of Nairobi lies between the altitudes of 1,670m to 1,700m above sea level. It is located on longitude 36° S O E at 3 hours ahead of GMT and on latitude of 1° 17' south, at about 150 km south of the equator in the Republic of Kenya, in East Africa. In the north lie the Karura Forest Map 4.2 and the coffee estates, characterized by steep-sided valleys running northwest to southeast. In the southwest is the Karen-Langata. The area is part of the Embakasi plain, bounded on the east by the Game Park. In the south is the Nairobi National Park, which because of its importance for conservation and tourism the Nairobi Metropolitan study recommended a total constraint on any form of interference, mainly from urban development in the area.

### **4.2.2 Physical Features**

Nairobi is abundantly blessed with perennial river such as Mathare River, Nairobi River, Gitathuru River, Ngong River, Gatharaini River and Riaru River that pass through the study area. The eastern and the southern side of Nairobi is generally characterized by flat lands of clay soils also known as black cotton soils, stone outcrops and murram soils, while the western and the northern side is generally characterized by hill bluffs and red volcanic soils, and murram soils. The general terrain of the city presents with a hill bluff to the west, flat plain to the east and gentle slope to the south. The natural vegetation in the Nairobi area is Savannah grassland to the east and to the south e.g. Kasarani, Embakasi and the game park, tropical forests to the west and to the North e.g. Karura Forest, Ngong road forest and Dagoretti forest.

#### **4.2.2.1 Physical Base**

Nairobi lies on the foothills of Aberdares and on the valley of Nairobi, Mathare and Gitathuru Rivers. Rocks and the Athi plains phonolites weathering to black cotton soils (poorly drained) and pisolitic tronstone (murram) soils. Due to the low lying characteristic of the site of Nairobi and soil types the vegetation of the area range from grassland to forested areas towards Kiambu. To date more and more of the

natural hinterland of Nairobi continues to be connected into human urban settlements.

#### **4.2.2.2 Geology and Soils**

Nairobi is predominantly under laid by the Nairobi Phonolites of middle Pliocene rocks extensively quarried for use as concrete aggregate road stone and railway ballast. These rocks are found about 2-3 feet below the ground (Morgan 1967, NCC 1971). Soils within Karura are basically red loam soils.

#### **4.2.2.3 Climatic features**

The climate of Nairobi is characterized by tropical climates; Nairobi experiences an average temperature of 25 Celsius with very small seasonal temperature variations. Rainfall is seasonal, sudden and sometimes torrential registering ten-year-10 minutes intensity in mm/hr of 150. The rainfall is recorded as 873 mm per annum. The average annual rainfall is 40 inches (rainfall varies between 20-60 inches) in succeeding years. Generally, the city of Nairobi has a 30 percent chance of having less than 30 inches per year, and a 10 percent chance of receiving less than 20 inches. The really heavy rainfall is of storm origin. This brief rainfall at certain periods should be kept in mind with regard to drainage problems and their return periods known to guide planning and management of forests.

#### **4.2.2.4 Drainage**

Most of the rivers in Nairobi originate from the eastern side of the Rift Valley and roll gently downward towards the east, all forming tributaries of the Athi River, which itself originates from the eastern side of the Ngong hills, Karura forest is drained by three rivers namely, Karura River, Gitathuru River and Thigiri River.

#### **4.2.2.5 Environmental Aspects**

Nairobi area is predominantly an urban area and the environment is generally characterized by tall buildings, dense populations, air pollution, concrete jungle marshy areas, savannah grasslands, forests, open drains, over flooding rivers, open dumping sites, open quarry sites, soils pollution, river water pollution, dense informal settlements, industrial effluents and noise pollution.

### **4.3 History, Planning and Development of Nairobi**

A part from being a physical and ecological frontier between Savanna type and mountain type, the present location of Nairobi was before the coming of the European, an ethnic front for Kikuyus, Maasais and Kambas. The Kikuyu and Kambas were Bantu Semi pastoral communities while the Maasai were entirely nomadic pastoralists of Nilo Hamatic origin. Kikuyus occupied the name the Maasai gave to Nairobi River passing through Kilimani, Museum and Kamukunji, which was part of the initial settlement nucleus of the city. The river was called "*Enkare Uaso Nyirobi* meaning " the stream of cool water"

In 1896, Sergeant George Ellis built a transport department near Martin's camp and became the first European to live in Nairobi. This occasioned by the building of the road that linked Mombasa Harbor and Uplands running through Pumwani, Ngara, and Westlands to Fort Smith. Before this date, Nairobi had by 1850 become a popular spot along a Caravan route. By 1891, captain Eric Smith established Fort Smith near Dagoretti while Pangani was also declared a campsite for porters. Nairobi was first established in 1899 as a railway depot, and soon, became a communications center and the headquarter of the provincial administration. The community's permanence was confirmed in 1905 when it became the capital of the country with a population of about ten thousand (Nairobi City Council 1971). Thereafter, the importance and size of the town increased steadily and in 1919 Nairobi became an incorporated municipality (Kingoria, 1983).

In the early years, the growth of the town had been controlled only by economic forces, with no co-ordination of development other than by the layout of a gridiron street pattern in the center. In an attempt to order the situation, a town-planning consultant was appointed in 1926 to make recommendations on zoning arrangement. However, little was done to curb land speculation, and development occurred in an uncontrolled manner. A further master plan study was commissioned in 1948. It laid down the guideline for the following twenty years, earmarking land for residential, industrial and other uses. It introduced the principles of neighborhood units; it was largely responsible for the present layout of the industrial area.

With the attainment of independence in 1963 the boundaries of the city were enlarged from the 'old city' area of 90 square kilometers to embrace an area of 690 square kilometers including Nairobi's Peri-urban settlements and certain other important features such as the Game Park, Embakasi Airport and area of ranching land for future expansion. The demarcation of the boundaries was, however, greatly influenced by pre-independence political considerations, with the result that the entire city area does not constitute a cohesive planning unit.

In 1973, the Nairobi Urban study group under the auspices of the World Bank did the metropolitan growth strategy for Nairobi. The strategy stipulated policies related to the employment, housing, transport, among other major aspects of urban development. This plan had a life span of 25 years, which has since expired. As such, the city of Nairobi does not have a plan at the moment to guide its present and future development needs including urban forestry, thus providing the premise and legitimacy of this study.

The present city of Nairobi covers an extent of 690km<sup>2</sup>, with a gross population density of 3,100 persons per square km (GOK, 1999). The city of Nairobi has been severally referred to as the Green city in the sun, on a serious note. Derogatory language has been used against Nairobi also, like the City in the Garbage, the city of potholes and the city of crime (UNCHS Habitat 1992).

#### **4.4 Population growth in the city of Nairobi**

In 1902, Nairobi population was estimated at less than 10,000 people. In 1905 it became the capital of the colony, with a population of about ten thousand (NCC, 1971). The first recorded population figures for Nairobi was in 1907, where the town was estimated, to be the home of over 13,000 inhabitants, with its boundary limited to a circular area of 1.5 miles radius arbitrarily fixed in 1900 by the Nairobi Municipal Council Regulation. In 1919, Nairobi became an incorporated municipality with the township; area extended to cover 9.8 miles radius and it was at this point that Nairobi became a Municipality (Kingoria, 1983). The municipality was further extended again, in 1948 to cover 324 square miles with an urban population of about 110,000 people and subsequently in 1950; Nairobi became a

city on 30<sup>th</sup> March 1950, by a royal charter of incorporation. At independence in 1963, the size of Nairobi was increased to cover 697km<sup>2</sup>, which is the size up-to-date. This increased the population steadily so that by 1969 the population of Nairobi stood at 509,286 by 1979 it was 827,775. By 1989, the population had raised to over 1,300,000. The 1999 census indicated that presently Nairobi has a population of over 2.1 million people. The annual increase of urban population of Nairobi in absolute figures is about 250,000 people per annum.

## CHAPTER 5

### LEGAL, INSTITUTIONAL AND POLICY FRAMEWORK ON LAND AND NATURAL RESOURCES

#### 5.0 Introduction

Since land constitutes the wealth of the nation, the government on behalf of the nation regulates law on land and other resources. As with all sectors Forest Acts does not alone regulate the existence and management of forests. Although constitutions rarely address forests directly, perhaps a surprising fact given the world-wide interest in environmental matters at this time. They do however lay the foundation for state jurisdiction and some declare forests the property of the state property of law on the other hand is fully central to the status and management of forests, water agriculture, and land use laws play a role as explored in this chapter. For this reason land planning laws are almost entirely expressed in enabling Acts of parliament delegating responsibility to various institutions of Government. In Kenya, and therefore the study area by extension, it is realized that the statutory body for land use planning, the Physical Planning Department, is not the only planning body formulating land use policies. It is on the recognition that effective plan formulation and implementation requires enabling statutory regulations and supportive institutions that this chapter proceeds to analyse the policy, legal and institutional framework as it relates to the study. Presently, land in Kenya falls under three tenure categories: -

- Government land
- Trust land
- Private land

Government land includes both alienated and unalienated land. Alienated land is land that has been set-aside for a specific purpose. Unalienated land is legally owned by the government but has not been set-aside for a specific purpose. The classification of land is shown in the table below: -

**Table 5.1 – Land classification**

<b>LAND CLASSIFICATION</b>	<b>AREA IN KM<sup>2</sup></b>	<b>APPROXIMATE % OF TOTAL AREA</b>
Trust Land	457,449	78.5
Government Land	9,116	
• Forest Reserve		
• Other GOK Reserves	1,970	
• Township	2,831	
• Alienated	38,546	
• Unalienated	28,598	
• National Parks	24,067	
• Open water	10,960	
Total Government Land	116,088	20.0
Private land	8,731	1.5
<b>Total Area</b>	<b>582,646</b>	<b>100.0</b>

Source: (Kenya, 1996) Central Bureau of Statistics

### 5.1 Historical Perspective of planning law in Kenya.

The purpose and principle of planning is to make suitable provision for the use and development of land and natural resources. The existing planning statutes borrowed heavily from British town planning ideas during the protectorate (1895 to 1920) period, colonial (1920 – 1963) period, and immediately after independence. Initially planning statutes adopted or applied were meant to influence the use of urban land in Nairobi, and other smaller centres such as Mombasa and Kisumu. The East Africa Protectorate 1903 Ordinance was the first land use statute in Kenya enacted barely two years after completion of the Uganda railway line. This was followed by the land use proclamation of 1911. This applied to the towns of Nyeri, Embu and Meru whose territorial jurisdictions were limited to 1 mile from the administrative flag post. It however, coincided with the Simpson committee Report of 1911 – 12 which gave Local Authorities (LA's) powers to make by-laws that were to be approved by the governor in council. The committee recommended zoning of Nairobi albeit on the basis of racial segregation. The government notice No. 911 of 1914 leaned towards development control in that it gave the definition of a plot in urban area and specified desired types of building materials, occupancy, accessibility and other provision related to sizes of structures.



In 1919, the Town Planning Ordinance was enacted and remained the only planning legislation for twelve years until 1931 when the Town Planning Act was enacted to amend the law relating to town planning in Kenya.

### **5.1.1 The Town Planning Act 1931.**

This Act was developed to control development of towns. For this reason, a Town Planning office with a Town Planning Advisor was established under the office of Commissioner of Local Government. The Act placed on the District Commissioner matters of development control thus bringing in the involvement of central government in planning issues. Although having the force of an Act, the 1931 Town planning Act was however full of contradictions. For instance Section 8 provided for public participation in plan making while Section 52 allowed 'secret planning', a feature that McAuslan (1980) refers to as consensual planning. Private developers could enter into private or secret arrangement with local planning authorities with some conditions being attached to the approved plans. This provision was misunderstood and misinterpreted resulting into the proliferation of illegal settlements.

The central government involvement continued until 1961 when the Development and Land-use (Planning) Regulations were enacted. These regulations represented an expanded legislative base capable of providing procedure for planning and control of development. The regulations were enacted later in 1968 to become the Land Planning Act. The Land Planning Act was to supersede the Town Planning Act but the latter was never repealed until the Physical Planning Act of 1996. It meant that the two Acts operated parallel with each other and the planning system was essentially discretionary. Confusion and conflicts resulted to using both Acts when it was suitable. The creation of planning units, approval of plans and the institution of planning were left discretionary to the policy-makers. It is against this background that the relationship between planning authorities, controlling institutions and executive authorities was and is still unclear and complex to date.

Some of the plans prepared during this period include the Master Plan for the City of Nairobi (1948). Since the Local Authorities (LA's) did not have adequate planning expertise, consultants prepared both plans.

### **5.1.2 The Land Planning Act of 1968**

Regulations of planning the use and development of land that had been put in place in 1961 were later re-enacted into the Land Planning Act (Cap 303) of 1968. The Act set out to provide guidelines on the preparation and approval process of plans such as, area plans, town plans, sub-division schemes, etc. This Act extended planning to peri-urban areas – 8 Km (5 miles) from the municipal boundaries and 400 ft. (122 m) from the highways, by establishing the Central Authority (CA). The Central Authority's role was that of controlling development in areas where the Interim Planning Authorities (IPA's) did not exist. The non-agricultural developments in the rural areas, which had to be approved by the CA, included the following: -

- The subdivision of farms into portions less than 8 hectares. (Approximately 20 acres).
- Changes of user from agricultural to non-agricultural purposes (commercial, industrial, residential).
- Any development in the radius of 8 kilometres from boundaries of township and municipalities.
- Display of any advertisement.
- Deposits of refuse, scrap and waste materials on lands.

The major plans carried out under this framework include the Nairobi Metropolitan Growth Strategy (NMGS) of 1973; structure plans for most of the municipalities like Thika, Nakuru, Eldoret, Mombasa and Kakamega, and the Human Settlement Strategy (HSS). A central player in the Land Planning Act who cannot be ignored was the Minister responsible for Physical Planning. The Minister's role included preparation of Town Plans, Area Plans, Sub-division Plans and plans in respect of unalienated government land through the Commissioner of Lands Office and the Physical Planning Department. It is however the Commissioner of Lands who carried out most of the Ministers functions and responsibilities in the approval of plans and ensuring enforcement and compliance with the same. The Central Authority, Interim Planning Authority and Local Authorities could issue an enforcement notice where a developer had developed without their consent, through the powers delegated to them by the Minister through the Commissioner of Lands.

### 5.1.3 The Physical Planning Act Cap 286

This is the main law that currently governs spatial planning in Kenya today. It repealed both the Town and Land planning Acts and provides the legal basis for the preparation and enforcement of direct physical development plans and requirements. The act has established the office of the Director of Physical Planning. Depending on the type of plan prepared, the responsibility for approval of plans rests with the minister of Lands and Settlement and Local Authorities. For instance, the Minister approves development plans while the relevant Local Authorities approves sub-division of land; building plans and plans relating to the change of user and extension of lease. Local Authorities may grant or refuse to grant permission depending on various criteria and also attach conditions to any approvals in order to ensure compliance with development plans.

The Act in Section 29 stipulates that development control measures can be taken in order to ensure compliance with the plan's proposals and requirements. Section 29 states that each Local Authority shall have the power

- (a) "To prohibit or control the use and development of land and buildings in the interests of proper and orderly development of its area.
- (b) To control or prohibit the sub-division of land or existing plots into smaller area." (PPA Pp.79).

It empowers Local Authorities (LAs) to regulate and exercise control over physical development decisions and activities. In so doing, the LA sanctions all development applications and issues an enforcement notice where a developer has proceeded to develop without grant of permission. Section 13 (1) states that

*"Any person aggrieved by the decision of the Director concerning any physical development or any matters connected therein may appeal to the respective liaison committee in writing against the decision...."*(PPA, Pp 173).

Under Section 30(2), the LA may charge fines, demolish illegal structure to ensue compliance with approved plans thus giving wide enforcement powers to LA's. Through it's sister legislation the Physical Planners Resignation Act, the Physical Planning Act opens up room for the participation of the private sector

in plan preparation activities through the establishment of physical planning profession and registration and licensing of qualified planners. On the other hand, the National, District and Municipal Physical Planning Liaison Committees created by the Act are avenues through which the public can voice their opinion and grievances. However, the power of physical planning is concentrated at the national level and local authorities are not seen as planning entities but development control agencies, yet the Local Government Act Section 166, empowers them to plan.

Some notable achievements of the Physical Planning Act have to do with the separation of powers. Under this Act, the preparation of plans is left to Registered Physical Planners (including the Director of Physical Planning and his/her officers). Therefore approving plans is shared between the Minister and Local Authorities, whereas plan implementation and enforcement become an entirely local matter, being vested in Local Authorities. The office of the Commissioner of Lands (COL) ceases to prepare and approve plans and takes on the role of documenting and administration of matters relating to land.

The powers vested by this Act in the relevant agencies are wide enough to cover land-use planning and zoning for the whole country. However, in practice the act is primarily concerned with planning of urban centres and the development of physical facilities such as roads, buildings and factory location with little attention to urban forestry as a land use.

#### **5.1.4 Other Laws Related to Natural Resource Planning**

There are numerous laws that have a direct or indirect bearing on spatial planning activities. Some of them as they impact on the study area are discussed here below.

- **Local Government Act. Cap 265(LGA)**

Local Authorities in Kenya are the creation of the Local Government Act. Section 5(1) (a) gives the minister powers to “*establish any area to be or cease to be a municipality, county or township*” and is further empowered to assign names, alter boundaries and names among other duties

The powers of Local Authorities under the Act are relatively wide, although few duties are mandatory. All Local Authorities are responsible for land use planning and development control. Under Section 166. *"Every municipal council, county council or town council may subject to any other written law relating thereto, prohibit and control the development and use of land and buildings in the interest of the proper and orderly development of it's area"* (Pp 108).

There are no less than 186 clauses in the LGA vesting the Minister with powers in relation to Local Government. Under 202, a Local Authority may from time to time make by-laws in respect of matters necessary or desirable for the maintenance of health, safety and well being of the inhabitants of its area. An example here are the Kisumu municipality (Building Planning) By-laws of 1961, which were enacted to cater for planning and buildings in Kisumu municipality and gave detailed specifications of use of land, density of buildings, erection of buildings etc. Together with the provision of the Physical Planning Act, development control then rests squarely on the Local Authority.

Section 162 (g) concentrates on sub-division regulations stating clearly that the Local Authorities shall have power to control the sub-division of land or existing buildings plots into smaller areas by demanding that such sub-division be not transferred until an approval certificate has been given. The Local Authority also may lie out buildings plots into smaller areas by demanding that such sub-division be not transferred until an approval certificate has been given. The Local Authority also may lie out building plots, and guide sub-division for purposes of house constructions.

- **Government Lands Act, Cap 280 (revised 1984)**

This Act deals with Government land which include forest reserves, other government reserves, townships, alienated and unalienated government land and national parks. In this Act, Section 3 gives the president powers, subject to any other written law to *"make grants or dispositions of any estates, interests or rights in or over alienated Government land."* The powers of the president over government land also extend to forest reserves, because these are administered under

the Government Land Tenure. Under this Act allocation of land should be through public auction, advertised in at least three dailies.

### **Forest Act, Cap 385**

The Forest Act, Cap 385 of 1962 (revised 1982 and 1992) states that a "*forest area means an area of land declared under Section 4 to be a forest area*" The Act addresses preservation, protection, management, enforcement and utilization of forests and forest resources on government land. The forest act is applicable to Forest Reserves and specifically covers:-

**Section 4:** Gazettement, alteration of boundaries and de-gazettement of forest reserves. This Section states:

- (1) The Minister may from time to time by notice in the Gazette:-
  - (a) Declare any unalienated Government land to be a forest area;
  - (b) Declare the boundaries of a forest and from time to time alter those boundaries.
  - (c) Declare that a forest area shall cease to be a forest area.
- (2) Before a declaration is made under paragraph (b) or paragraph (c) of sub-section (1), twenty-eight days' notice of the intention to make the declaration shall be published by the Minister in the Gazette.

**Section 6:** Declaration of Nature Reserves within Forest Reserves, and regulation of activities within nature reserves. A nature Reserve is an area declared to require extra protection for the purpose of preserving its natural amenities and wherein the exploitation of forest products is prohibited, except with the permission of the Director of Forestry in consultation with the Chief Game Warden.

**Section 9-14:** Enforcement of the provisions of the Act, penalties and powers afforded to enforcing officers. Section 10 sub-section (1) states "A forest officer empowered in that behalf by the Minister by notice in the Gazette may, with the consent of the Director of Forestry, if he is satisfied that a person has committed an

offence under this act, except from that person a sum of money by way of compensation for the offence together with the forest produce, if any, in respect of which the offence has been committed:

Provided that the compensation shall not exceed five times the value of the estimated damage or where the value cannot be estimated, two hundred shillings for each offence.

What should be noted from this provision is that it encourages corruption where the forest officer at his own discretion can decide to fine the offender any sum of money and pocket it or even give the government a small amount and keep the rest. Also the fine is so small to deter any person who intends to commit an offence.

**Section 15:** Power of the Minister to make rules with respect to sale and disposal of forest products, use and occupational land, licensing and entry into forests. These forests (General) rules set forth rules for sale of forest produce and specifies royalty rates for these products. The forest (General) order Rules were last up-dated in July, 1998. Under these Rules, community utilization of forests for subsistence are included under "Miscellaneous forest products" which include fuel wood, grazing, medicinal plants, honey etc. These products can be exploited by acquiring, a permit from the local forester for minimal fees. Commercial logging, quarrying and leaseholds in forest resources are acquired through licensing with the approval from the Divisional Forest Licensing Committee, the District and Provincial Environment Committee, up to the Ministry level. Despite the Act deforestation has been going on for long, one of the explanations given by the forest officers is the acute staff shortage within the Department of Forestry under the Ministry of Environment and Natural Resources.

### **Forest Policy**

The current Forest Policy received Cabinet Approval in 1994 and replaced the one effected by Sessional Paper No. 1 of 1968. The 1994 Policy aims to provide continuous guidelines to Kenyans on sustainable management of forests and potential forestland. It takes into cognisance existing policies relating to land use, wildlife, environment, agriculture, energy, industry, regional development, among

others. The need to conserve soil, water, biodiversity, and other forest resources on gazetted forests; other protected forestlands, on farms and in arid and semi-arid lands, are also discussed in the policy.

### **Chief's Authority Act, Cap 128 of 1970 (Revised 1988)**

This Act empowers chiefs to enforce various Governmental consecrating provisions within the limits of their jurisdiction, including control of the use of these resources on private land. There is power relevant to forest;

- Prohibits the destruction of vegetation.
- Regulating the cutting of timber and prohibiting the wasteful destruction of trees.
- Control of grass fires.
- Ordering the execution of work or services for the conservation of natural resources.
- Empowering the minister to remove members of tribal community who have land reserved for them, if they unlawfully occupy or cultivate any land other than the reserved land.

The Chief's Authority Act is one of the principal statutes through which the Provincial Administration implements Government policies and development priorities. This Act has been criticized because of the broad powers it confers which can be abused.

### **The Environmental Management and Coordination Act, 1999**

This is 'An Act of Parliament to provide for the establishment of an appropriate legal and industrial framework for the management of the environment and for the matters connected therewith and incidental thereto' (*GOK, 2000*)

This is the most comprehensive environmental law in Kenya and is the main law governing environmental management. It covers a range of environmental component ranging from lakes to forest, water to air, among others.

The ultimate objective of EMCA is to provide a framework for integrating environmental considerations into the country's overall economic and social



development. Specifically, it aims at harmonizing the various sector-specific legislations touching on the environment in a manner designed to ensure greater protection of the environment, both physical and social, in line with the goal enunciated in Agenda 21 of the Earth Summit held at Rio De Janeiro in 1992.

Section 58 of EMCA makes it mandatory for environmental impact assessments (EIA) to be conducted before the commencement of projects involving urban development (including the establishment of recreational townships in mountain areas, national parks and game reserves), water bodies, transportation, mining, agriculture and forestry-related activities requiring EIAs include timber harvesting, clearance of forest areas, and reforestation and a forestation.

Protection of forests under private land is provided for under section 48. NEMA after consultation with Chief Conservator of Forests may enter into private mutual contractual agreement for registering such land as forests without any prejudice to traditional interest.

#### **Timber Act, Cap 386 of 1972**

This Act provides for control of the sale and export of timber by means of grading, inspection and making, and provides for the control of timber in transit. Presidential Decree bans the export of unprocessed indigenous timber at present.

#### **The Water Act Cap 372**

The Act provides for the conservation, control, apportionment and use of water resources of Kenya. Various institutions have been found to oversee matters of water utilization such as Water Retainment Boards Section 23(2), Water Resource Authority Section 19, Regional Water committees Section 20, and Water Apportionment Board Section 25. All water bodies both on the surface and underground are vested in the Government through the control of the Minister. In Section 13(1) of the Act, the Minister is empowered to drain swamps, which could have adverse effects on forests. Section 14 of the Act gives the Minister powers to gazette water catchments in the Country. In the study area, this Act should come in handy, as it is a catchment region for the greater Athi River drainage basin, because

Nairobi river as a tributary of Athi River is fed by rivers like Karura, Gitathuru which pass through the forest, with a low evaporation rate since the trees reduce the sun intensity and also the leaves purify the water in the rivers.

### **Mining Act Cap 306**

The Act vests all un-extracted minerals in the government and under section 4 mining without the required authority is prohibited. The Act has failed to address issues of reclaiming and rehabilitation of areas that have undergone land dereliction and degradation as a result of mining activities. The Act makes such issues obligatory rather than mandatory.

### **Agriculture Act Cap 318**

The Act aims to promote and maintain a stable agricultural environment by providing for the conservation of soil and its fertility. It also calls for the stimulation of good land management and husbandry. Section 184(1) empowers the minister to protect agricultural land with reference to any developments that may curtail productivity efforts. Such developments include erection of buildings and other works on agricultural land. Authorized officers are empowered to prohibit the clearing of vegetation and the grazing of livestock and to encourage the planting of trees to protect the soil from erosion and impose penalties under the Act. This can be applied in the study area in line with the 1973 Nairobi Metropolitan Strategy, which called for conservation of the forest as a buffer zone, hence protection of the coffee farms in the neighbouring Kiambu District, since agriculture was the backbone of our country's economy.

### **Registered Land Act Cap 300**

The Act came into force on 16<sup>th</sup> September 1963. The preamble of the Act states *"An Act of Parliament to make further and better provision for the registration of title to land and for regulations of dealings in land so registered and for purposes connected therewith"*

Land that is adjudicated or set apart vide Section 117 and 118 of the constitution is registered under this Act. This Act seems a "self contained" statute. The Registered Land Act (Cap 300) is one of the statutes that govern land administration of both

Government and Trust lands. This is more so in the area of land-use planning, control and development monitoring, Leaseholds are considered under the Registered Land Act. The most important planning tools are the restrictive covenants attached thereto. These restrict what the lessee can do with his land or any future dealings, which are binding such as: -

- Definition of period of term. In urban areas, this is usually 99 years, 25 years for special purpose facilities, and 999 years for agricultural land (Section 45)
- Section 48 of RLA describes implied covenants between the lessor and the lessee. This is where development control as a planning tool is highly used, as the lease cannot be transferred, sub-let unless consent from an administration office, more often the lands office, is given.

## **5.2 Management and Planning Institutions**

The main drivers towards forest management are not difficult to trace and have much in common with developments elsewhere in the country. The general impetus is recognition of the failure of most centralised forestry administrators effectively sustain forests, the task they have almost taken solely upon themselves.

In Kenya, there exists a multi-level and multi-faceted institutional structure for the planning function. Some of the institutions involved in planning activities are summarized as follows: -

### **5.2.1 National Level Planning Institutions**

Ministry of Finance and Planning is the body charged with the overall planning of the Kenyan economy. It articulates national development objectives, policies and programme through five-year development plans within which physical development policies are articulated by the department of Physical Planning. In the plan, detailed sectoral targets and ways to achieve these targets are given. Thus the contributions to national development to be made by the various sectors such agriculture, industry, tourism and LA plans are given in the five-year plan period. Within the framework of national planning, there has been increased urbanization over the years. Any settlement of over 2000 people in Kenya is considered urban. The number of towns has therefore increased from 17 in 1948 to 177 in 1996. The

urbanization trend is expected to reach 280 towns in 2010 with a population of 11,554,000 people (Sector Review, Habitat, June 1996). Other national bodies charged with planning responsibilities at national level include Department of Physical Planning, Urban development department, National Environmental Secretariat (NES), National Physical Planning Liaison Committees and Ministry of Local government.

### **Physical Planning Department**

The Physical Planning Department (PPD) is charged with the preparation of physical development plans for all towns in the country. It prepares regional physical development plans, structure plans and short-term physical development plans in the country. The department is represented at provincial and district level and works closely with Local Authorities in matters related to physical planning in their areas of jurisdiction. The department is linked to the Rural Planning Division of the Ministry of Planning and National Development. It co-operates with the Ministry of Planning in the preparation of five-year district development plans that set the social, physical and economic framework governing the implementation of various public and private sector programme.

### **Physical Planning Liaison Committees**

These are institutions established by the Physical Planning Act under Section 7-15. Section 7 states "*There shall be established the Physical Planning Liaison Committees in accordance with the provisions of the Act*" (PPA, Pp 69).

The establishment of the liaison committees is founded on two principal concerns. Firstly, they provide an avenue for a legally institutionalised system for conflict resolution in the process of physical development planning and implementation. Secondly by incorporating other authorities, the committees provide an avenue for a truly participatory determination of issues that transcend diverse disciplines and concerns.

Although composition and membership are provided for in Section 8 of the PPA, Section 9 states "*Notwithstanding the provisions of Section 8, a liaison committee may co-opt such other persons as it deems fit to assist the committee in its deliberations*" (PPA Pp 72). The rationale behind this is to enable the liaison

committees' reach out to special interest groups that may not always in the opinion of the committee members, be adequately represented in any specific deliberations. Areas, which require further consideration by these committees before LAs can grant or reject applications for permission to develop are:

- Land adjacent to lakes, wetlands, forests and national parks
- Land adjacent to international boundaries
- Land adjacent to major public utilities

### **Urban Development Department**

The Urban Development Department based in the Ministry of Local Government is involved in assisting Local Authorities to prepare Local Authority Development Plans (LADPs). This process was initiated in 1982 after the Ndegwa Working Party on Government Expenditure. The LADP is a five-year capital expenditure plan containing a programme of infrastructures and investments in selected business enterprises meant to resuscitate the urban economy. However, the LADP has become a shopping list of investment projects, and fails to address spatial concerns, environmental issues and challenges of urban growth. The LADPs are divorced from planning and have inadequately addressed the planning problems and opportunities in Local Authorities. Lately, the LADPs have been supplemented by the LASDAPs, which are programme meant to improve local service delivery with the aim of enhancing economic governance and alleviating poverty as well. A LASDAP is a three-year rolling programme, which lists activities and projects affordable by the attendant LA.

### **Local Authorities**

The Local Government Act (LGA), (Cap 265) of the Laws of Kenya provides for the establishment of authorities for local government. Under Section 166 of the Act, Local Authorities are also mandated to carry out land use planning and development. Whilst Local Authorities in Kenya are statutory/corporate bodies, they are made to act as semi-autonomous institutions of the central government concerned with the planning, development and provision of services at the local level. The structure of the local Government system places Local Authorities in a three-user set up in the following hierarchical order: -

- (a) City/Municipal councils (including the city of Nairobi and presently Mombasa and Kisumu)
- (b) Town Councils
- (c) County councils.

Municipal councils are supposed to be established in the large urban areas and their duties involve provision of a broad range of services including primary education, health services, road construction and maintenance, water supply (where the municipal council is the water undertaker), sewerage, housing, etc. Town councils are established in medium sized towns and they provide fewer services. County councils are rural based and operate within the geographic boundaries of administrative districts and provide even fewer services. The study area is under the jurisdiction of the City Council of Nairobi, which does not have any development plan for forests as a land use. This perhaps explains its dismal performance in the study area.

The Local Authorities are empowered under section 166 to 'prohibit and control the development and use of land and buildings in the interest of the proper and orderly development of its area' (LGA Cap 265, Pp 108). Section 210 empowers the Local Authorities to make adoption by-laws in respect of all that makes it necessary for the maintenance of health, safety and well being of the inhabitants of its area while section 144 gives Local Authorities power to acquire land within its jurisdiction.

### **5.2.2 Regional Level Planning**

Regional Development Authorities (RDA's) have been established for the management and utilization of resources to facilitate socio-economic development under respective Acts of Parliament. The management planning for the country's river basins is vested in regional development authorities. Some of these are, Tana and Athi River development Authority (Cap 443). Kerio Valley Development Authority (Cap 441), Lake Basin Development Authority (Cap 442) among others. Initially provinces were planning regions in the early 1970's they have been replaced by Districts. Types of plans made include master plans of resource utilization. Regional Development Authority plans cut across various districts,

which creates disharmony and duplication of roles. According to the statutes, the function of the regional development authorities include rendering assistance to operational agencies in their applications for funds and causing the construction of any works necessary for protection and utilization of the water and soils of the area. The activities of River Basin Development Authorities, especially those concerning the construction of hydroelectric dams and irrigation projects along the rivers have implication especially for riverine forests. Coupled with land use changes upstream and the degradation of catchment areas, these projects result in altered volume and regularity of water flow and siltation levels which affects both riverine forests and the ecology at the river mouth which in turn, affects the flora and fauna, for example, mangrove forests and marine life.

Riverine forests, supported by underground water see page, are found in localized areas such as Dodori and Boni forests, with some patches along Turkwell River, Athi/Galano and the Tana Rivers covering less than 1 percent of Kenya's total forest estate. Riverine forests owe their dynamism, structure and composition to river process and the water regime (Nkako, 1999)

The Turkwell Gorge Hydro-electrical dam, managed by the Kerio Valley Development Authority along the Turkwell River in Turkana has also had an impact on the riverine forests due to changes in the water flow and flooding levels.

The depletion of Karura forest could be linked to the regulation of the floods that affected the city of Nairobi in 1998. Also changes in the forest habitat is in turn threatening certain species of wildlife especially the monkeys, antelopes, birds and some rear species of butterflies.

### **5.2.3. District Level Planning**

Institutions found here are the District Development Committees (DDC's). District Environment committee and Government Departments of different ministries, Physical Planning Department through the District Physical Planning Office. The types of plans made at this level are the five-year district development plans, the long-term district physical development plan and the sectoral plans of Government Departments.

#### **5.2.4. City/Municipal Level Planning**

Institutions of planning at this level are Municipal and City Local authorities, Department of Physical Planning, private sector and other organizations, as well as the individual developers and community. Apart from the City of Nairobi, and lately Eldoret municipality, which have their own planning departments, other municipal authorities have no planning capacity and therefore rely on the Department of Physical Planning at the district level for preparation of plans and discharge of planning service. Other institutions at this level are the municipal/city physical planning liaison committees.

#### **5.3 The role of Other Central Government Agencies In Planning.**

As in most countries, the responsibility for planning and development falls on a number of agencies in addition to the above mentioned. At one time, it was claimed that there were about 36 separate GOK agencies and private sector institutions, which had a role in the formulation and implementation of urban planning. Of these, the most important ones comprise various central government ministries such as:

- **Ministry of Finance (MOF)**, which though deals with general economic policy issues, is the final arbiter on division of the national cake and allocation of national funds. The share of the national cake for local authorities is decided by MOF. This planning machinery is dominated by sectoral planning which affects spatial planning in terms of resource allocation. It is also constrained by a mixture of regulatory and development functions and lacks a legal framework.
- **Ministry of Lands and Settlement (MLS)**, which has wide-ranging powers with respect to the planning, mapping, surveying. Allocation and registration of land throughout Kenya.

The Department of Lands under this Ministry has very wide-ranging functions dealing with administration of land in Kenya; allocation of government land; approval of department plans; preparation and registration of land titles; administration of 'trust lands' on behalf of all Local Authorities. The Ministry



has significant resource constraints such as an up-to-date land information system which limits it's capacity to carry out the planning activity.

- **Ministry of Environment and Natural Resources**

This is a crucial key player in conservation, planning and use of natural resources like water, forests, air, etc. It collaborates closely with the planning function of sustainable development. Lately it has come under attack for the wanton destruction of forests in the country and misuse pollution of river drainage systems more so in urban areas and areas adjoining urban areas.

#### **5.4 Planning and Development Control practice under the PPA Cap 286**

The plan-making process under the new Physical Planning Act has changed greatly with the Director of Physical Planning exercising a more active role than before the Act. The procedure of plan making can be summarized in three broad categories as follows: -

##### **5.4.1 Authority to prepare Physical Development Plans**

The initiative to prepare Physical Development Plans originates from various authorities depending on the type and purpose of the plans to be prepared. These authorities are: -

**(a) The Director of Physical Planning.**

The Director of Physical Planning or the District Planning Officer is mandated to initiate the preparation of any plan in consultation with the Local Authorities concerned and other relevant stakeholders.

**(b) Local Authorities.**

Local authorities can initiate the preparation of both regional and local development plans in consultation with the Director of Physical Planning. When the decision to prepare the plan has originated from the Local Authorities, the Director will need to be furnished with such details as the purpose of the plan, objectives and scope of the plan and information as to whether the plan is to be prepared by the Director, Local Authorities or they commission Registered Physical Planners.

**(c) The Commissioner of Lands.**

The Commissioner of Lands may initiate the preparation of a Part Development Plan on Government Land as provided under Section 9 of the Government Lands Act (Cap 280) for purposes of land alienation either by directly requisitioning for the same to the Director of Physical Planning or indirectly through the District Plot Allocation Committees.

**(d) Director of Land Adjudication and Settlement.**

The Director of Land Adjudication and Settlement can initiate preparation of Physical Development Plans in areas where the adjudication process or in areas where settlement schemes are under preparation. In both situations it is desirable that the Director of Physical Planning is consulted for purposes of ensuring harmony in the human settlement endeavors.

**(e) Local Communities.**

Local communities through community based organizations, NGOs, land-owning companies, cooperative societies and individual land owners can initiate the process of plan preparation either as advisory plans or land subdivision schemes. It should be noted that irrespective of where the decision to prepare a Part Development Plan may have emanated from, it is only the Director of Physical Planning who has the mandate to prepare one.

**5.5 Plan Preparation**

The process and actual activities of plan preparation must be all-inclusive. Hence, before embarking on the preparation of any physical development plan, it is imperative that all stakeholders are identified and brought on board irrespective of who is initiating the preparation of the plan. If the initiative has emanated from the Local Authority or any other stakeholder, it will be the responsibility of the initiator to notify the Director of Physical Planning/District Physical Planning Officer and other stakeholders. Similarly, if the Director of Physical Planning/District Physical

Planning Officer has initiated the plan preparation process the stakeholders should be notified and their participation invited by the Physical Planner who should:

- (a) Notify the Local Authority and Local residents in writing of the specific area to be planned, scope, purpose and objectives of the plan.
- (b) Copy the written notice and send it to the Director of Physical Planning.
- (c) Have another copy of the notice posted on the notice board of the Local Authorities and the Chief's Office indicating any intended meetings, public or otherwise.
- (d) Have other copies of the notice published at least in two local dailies-one in English, another in Kiswahili languages.
- (e) Record, discuss and file any representations, comments or objectives from any stakeholders whether the communication comes in writing, orally as say in public baraza or any other way.

### **5.5.1 Plan Publicity**

On completion of the plan preparation, the Director of Physical Planning/District Physical Planning Officer in consultation with the Local Authority are expected to:-

- (i) Submit the plan together with the technical report to the Director of Physical Planning.
- (ii) Circulate the plan to all members of the District/Municipal Physical Planning Liaison Committee and other relevant authorities who may not be members to the Liaison Committee. Comments from these authorities on the plan circulated to them should touch on the following pertinent issues: -
  - Suitability of the plan and its various provisions.
  - Compatibility of the various land use proposals.
  - Adequacy of services provided.
  - Safety and the aesthetics of the area.
  - The economy and efficiency considerations.
  - Compliance with special conditions set out in the title or grant of the land parcel or plot by the Commissioner of Lands.

- (iii) Arrange to publish notice of completion of the plan in two daily papers one in English and another in Kiswahili language using form PPA 3.
- (iv) Put up the same notice at public places, preferably at the notice board of the District Commissioner's office, Chief's office and Local Authorities office. The cost of publication of part development plans relating to land alienation will be borne by intended beneficiaries while the cost of publication of Regional Development plans, Structure Plans, etc. will be shared out between the Director of Physical Planning and the relevant Local Authority.
- (v) Representations or objections arising out of circulation and publication of the plan should be well considered for accommodation and if not accommodated, the District Physical Planning Officer should within thirty (30) days of receipt of the same notify the petitioner in writing of the reasons for the decline.

### **5.5.2 Submission of Plans for Approval.**

If after the expiry of sixty (60) days no objections or adverse representations will have been received by the Director of Physical Planning/District Physical Planning Officer, or such comments have been received but the planner does not consider them serious enough to halt the processing of the plan further, or if the Planner has been able to accommodate such representations adequately, the planner should submit the plan together with the relevant write-ups in five copies to the Director of Physical Planning for his certification before it is presented to the Minister for approval.

The plan submitted to the Director of Physical Planning for certification should be accompanied with:-

- An indication of the authority or decision to plan e.g. minutes of District Plot Allocation Committee, requisition by the local authority, planner's own decision, etc.
- A copy of the notice to the Local Authority and other stakeholders inviting their participation in the plan preparation process.
- All comments received from other authorities to which the plan was circulated to, if any.

- Copies of the notices published in both the Kenya Gazette and the two daily papers.
- Copies of representation or objectives received from members of the public and other stakeholders.

Failure by the public and/or all the authorities to whom the plan is circulated to send their comments of objectives even after proper circulation and publication cannot stop the District Physical Planning Officer from submitting the plan for approval. Upon certification of the plan by the Director, three print copies of the plan will be forwarded to the Minister for approval.

### **5.5.3 Handling of development control matters**

Development control as a process is the implementation and monitoring of compliance with physical development plan provisions, regulations, policies and strategies. The step-by-step procedure of handling development control issues in as far as development applications are concerned under the provisions of the physical planning Act is as follows: -

- (a) All development applications should be made and submitted in triplicate on Form PPA 1 and submitted to the relevant local authority.
- (b) Development applications on subdivision/change of user must be;
  - Accompanied by a plan duly prepared as provided by the Land Control Regulations Section 2(2) and the Physical Planning Act Section 41(2).
  - Development applications involving building plans should have the drawings and specifications prepared by a registered architect.
- (c) The local authority on receipt of the development Application shall immediately or within 30 days send a copy of the development application on Form PPA 1 to the Director of Physical Planning/District Physical Planner and other relevant authorities in the district for comments, among them the District Land officer, District Surveyor etc.
- (d) The Physical Planner on receipt of the said copy (Form PPA 1) shall collect Appropriation in Aid (AIA) and consider and process the application and entered as

required. Information in the subdivision register. The Physical Planner then sends it back to the Local Authority with his comments. Other authorities do likewise.

- (e) The Local Authority shall process the application by making the decision whether to approve or not approve the development through Form PPA 2. This decision should be communicated in writing to the applicant within 30 days of the decision being made after considering comments from the District Physical Planning Officer and Other relevant authorities.
- (f) One of the conditions to be attached to approval of any application for permission to develop is the issuance of Form PPA 5 (Certificate of Compliance) by the District Physical Planning Officer. This certificate will only be issued when the applicant has fulfilled all the conditions attached to the approval as indicated on Form PPA 2 and/or when the applicant has carried out his development in accordance with the approved physical development plan and the approved development proposal.
- (g) On approval of any application for development permission, the Local Authority will issue notification to that effect on Form PPA 2 addressed to the applicant and copied to all relevant authorities and other stakeholders.
- (h) In the case of subdivisions/amalgamations, the applicant will furnish the surveyor with land control board consent and Form PPA 2 together with the approved sub-division scheme, who will then prepare the mutations/survey plans. The District Physical Planning Officer will issue form PPA (certificate of compliance) if satisfied that the survey plan mutations are in accordance with the approved scheme.
- (i) The land registrar shall be furnished with
  - a) Land control Board Consent
  - b) PPA 2 Form
  - c) Form PPA 5 and (iv), copy of approved subdivision/amalgamation scheme before he can register any document related to subdivision/amalgamation of freehold land (section 37).
- (j) All applications for development permission relating to leasehold land be it for subdivision/amalgamation extension of lease change of user or building plans shall be circulated to the Commissioner of Lands/District Lands Officer for consent or comments before approval by the Local authority Once approval for such application is granted, the local authority will communicate this decision to

the Commissioner of Lands/District Lands Officer through Form PPA 2 to enable the Commissioner of Lands to effect the necessary documentation as required under relevant laws.

As part of the process of integrating environmental considerations in the development control practice, proper guidelines are necessary for effective application of the provisions of section 36 of the Physical Planning Act. It is the responsibility of the District Physical Planners and respective local authorities to demand for preparation and submission of an EIA report by the applicants for development permission on any applications for development on any application relating to the following types of development.

- Proposed settlement in forested areas.
- Medium to high –density industrial development
- Any residential, industrial, hotel and commercial developments falling within (30) thirty meters of high meter marks, riparian reserves and forest edges.
- Dumping sites, whether private or designated municipal sites
- Sewerage treatment works and water dams
- Quarries and stone crushing plans

In the study area, the provisions of this relatively new Act are yet to be felt. This is explained by the fact that this community has for a long time been deciding what to do with their land with minimal interference. The market forces have produced a cluster of land types and development qualities, which are contradictory to the Act.

### **5.6 Urbanization Policies**

Urbanization policies started in a rudimentary form between 1900's and the 1950's when decisions were made by the colonial government to locate periodic markets, trading centres and urban centres in various parts of the country (Obudho 1981 and 1993; Owuor 1995). In the 1950's, four plans were introduced that altered the cultural and economic landscape of the nation.

First, the Troupe Report, which focused on the problems of farming in the white highlands. It recommended that to avert these problems there should be an increase in European immigration and settlement (Kenya, 1955). Second, the F. W. Carpenter report of 1954 that was primarily concerned with urban wages and proposed the policy of stabilization of urban wages through collective bargaining (Carpenter 1954). Third, the Swynnerton Plan that dealt with the Problems of Agriculture in African areas (Swynnerton 1954), and lastly the royal east African Commission whose aim was to identify the causes, conditions and trends of overpopulation in the urban areas.

The 1<sup>st</sup> National Development Plan (NDP) 1966-1970 did not represent any urban planning strategy different from the colonial strategies of the 1950's. Instead its major focus was on land reform in the "white Highlands". This was a period of centralist policies emphasizing agriculture and rural activities. The first explicitly national urban policy was seen in the 2<sup>nd</sup> National Development Plan (1970-1974). The strategy selective concentration as opposed to the concentrated development was adopted by GOK. The plan advocated for the continued expansion of Kenya's largest urban centres and designated seven other urban centres as growth centers. The plan also elaborated a four-level hierarchy of service centres totalling 16000 (Kenya, 1966). In the 3<sup>rd</sup> National Development Plan (1974-1978), the strategy was renamed "urbanization policy" which emphasized on slowing down the rate of rural to urban migration by achieving maximum development of rural areas. This was to check the excessive concentration of population in Nairobi and Mombasa by encouraging the expansion of small and intermediate urban centres.

The 4<sup>th</sup> National Development Plan (1979-1983) took its themes as the alleviation of poverty renaming the urbanization policy as a strategy for rural-urban balance. This aimed at improving rural access to services such as health and education. An investment allowance was introduced to include new industries to locate outside the two large urban centres. The 5<sup>th</sup> National Development Plan (1984-1988) was a replica of the previous plan as far as other centres were concerned. The urbanization policy was to later work side by side with the District Focus for Rural Development Strategy (DFRD), which was basically a decentralization policy.



The 6<sup>th</sup> National Development Plan (1989 – 1993) was guided by the need for rural urban balance, having the twin aim of guiding urbanization in bigger urban centres while ensuring that such increases occurred in small urban centres. The plan in essence reiterated regional equity as expressed in the fourth and fifth plans. The 7<sup>th</sup> National Development Plan (1994 – 1996) also expressed the need for regional equity through the development of smaller urban centres while the current 8<sup>th</sup> National Development Plan (1997-2002) seems to have gone a step further with its emphasis on industrialization by the year 2020, associating industries with urban centres.

In the context of this policy, the study area emerges as an appendage to the city of Nairobi with no clear balance between the rural and the urbanizing environment. It is apparent that the policies that had been put in place to check the growth of the city of Nairobi have not had the desired effect. For instance, development has leapfrogged into the Karura Forest that was a green belt separating Nairobi from the Kiambu countryside and is continuing unchecked in the study area.

### **5.7 Land Policy**

A land policy is defined as a set of socio-economic, legal, technical and political measures that dictate the manner in which land and benefits accruing from land are allocated, distributed and utilized (Kivelli, 1993 pp 124). The normal purpose of land policy is to control land development either in the sense of shaping land use patterns or in the broader sense of ensuring a degree of fairness and redistribution of the gains to be made. Bureaucratic processes of land policy and legal development have a long history in Kenya. There is a long list of policy papers going back to the 1930s that attests to the use of this modality. Okoth Ogendo (1998) notes that **“the overriding concern in contemporary land policy appears to be the need to formulate a macro level policy framework and complementary Programmes about land its ownership distribution, utilization, alienability, management and control”**.

Policy papers in Kenya during the colonial era include the following: -

- **Ormsby-Gore Commissioner 1925.** This commission noted with concern the existence of insecurity and restlessness within the African reserves, which had been created by the East African (Lands) Order in council in 1901. This commission noted the sense of grievance among Africans over the land question, and took into account the social conditions of Africans, treatment of African labour and the incidence of African taxation. The commission stated "*There is probably no subject which agitates the native mind today more continuously than the question of their right to land*" (Huxley 1935, pp 224 – 225).
- **Hilton Young Commission 1927-1929,** which suggested some accommodation on the above, mentioned question through some form of authoritative definition of reserve boundaries. The first legislative instrument relating to reserves – The Native Land Trust Ordinance was later passed as a result of this commission report.
- **Carter Commission (Kenya Land Commission 1930)** whose recommendations were to strengthen farther the settler community in the highlands. It recommended that Africans had little claim over much of the land in the highlands and that it was necessary to give a final and secure assurance to the Europeans that their "highlands" would remain inviolable. This meant that political security for the settlers was bound up with the political destiny of the African people.
- **Swynnerton plan (1954).** When the Mau-Mau revolution exploded in 1952, it became clear that the land issue could no longer be ignored. In plan authorized by one R.J. M. Swynnerton and published in 1954, the colonial government argued that the issue of accessibility of land was essentially one of tenure and technology of production. The plan argued, inter alia, that if these two strategies were adopted, Africans would be able to make sufficient returns on their small plots to abandon their demand for redistribution of European held land.

- **The East Africa Royal Commission of 1955**, which endorsed the economic arguments for tenure reform and also argued that the future stability of the country depended upon the drastic definition of land policy in Kenya. It recommended a basically multi-racial approach as the most logical course of action. Upon these assurances, individualization of tenure became a national policy.

Since then, Commissions, Task forces and investigation have been used in land policy development on many occasions. Perhaps the admission by the Government of Kenya in the 1994-1996 NDP that “there has not been a well coordinated land management policy with regards to various uses” (Pp 101 paragraph 6.7), summarizes the state of affairs as they stand today. This admission came in the wake of the 1989-1993 National Development Plan, which noted that land issues “exhibit a high degree of sensitivity and complexity in Kenya “(Pp 130)” The plan proposed, “ the Government will set up an independent Land Use Commission to review questions related to land “ (Ibid).

It is worth noting that this Commission only took in November 1999. When a Presidential Commission was appointed to review the whole system of land policy and law, with the intention of recommending a new legislative and institutional framework. Including the incorporation of customary tenure into statute law. The Commission popularised as the Njonjo Commission has submitted its findings and should be commended at this stage for the methodology adopted – that of popular participation. Kenya does not therefore of necessity have a clearly defined national policy that spells out the relationship between the people, the state and the land. Instead, aspects of land policy are currently found in various section of the constitution of Kenya, Presidential decrees, administrative circulars, sessional papers and various National development Plans. However, there exist a number of tools.Tactics, routines or techniques used in land policy some of which are summarized in **Table 4.2**.

**Water Policy, 1999**

Kenya's first natural water policy was passed by Parliament in April, 1999. The main object of this policy is the supply and distribution of water resources throughout the country in a sustainable, retrieval and economic way. This policy has implicating for the forestry sector in its objective with regard to environmental protection it recognizes the fact that increased human activities, especially in water catchment areas has resulted in the reduction and deterioration of forest cover area and constitutes a threat to the country's water resources. The policy proposes to address these issues through the protection of water catchments, river basin management and practices that take into account the role of forests and soil conservation measures play in conservation of water resources. Furthermore, it states that water catchments need to be identified and delineated and water catchment preservation and protection programme instituted in collaboration with the relevant Ministry in charge of forests.

**Table 5.2 Various Techniques used as land policies**

<b>Tactic Routine</b>	<b>Objectives</b>	<b>Legislation</b>	<b>Current practice</b>
1. Land Banking	Create reserves of cheap land Control land values control supply of land for housing	Local Government Act Land Acquisition Act	Piecemeal accumulation for specific projects
2. Rating	Raise revenue	Rating Act	Rating based on market value of unimproved site
3. Development	Revenue raising control rate of development	Physical Planning Act	Development application upon subdivision change of user, etc
4. Land use Zoning	Regulate use of land, control urban growth, control travel demand, and regulate supply of housing	Physical Planning Act Local government Act	Preparation of Physical Development plans delineating zones.
5. Density Zoning	Prevention of overcrowding	Public Health Act building by-laws Physical Planning Act, Registered Land Act, LGA, LCA	Plot ratio, site coverage height restriction. Minimum plot size, maximum, number of dwellings
6. Building control	Ensure safety Reduce fire hazards Establish space Standards Establish minimum sanitation standards	Building by-laws grade I & II	
7. Development control	Regulate type and density of development Aesthetic control Maintain health and safety standards protect environment control land values	Physical Planning Act Local government Act Public Health Act Building by-laws	Planning permission and approval Enforcement planning inspection by various experts.
8. Subdivision control	Control densities enforce space standards enforce servicing standards	Physical Planning Act Registered Land Act Street adoption act	Subdivision applications. Survey  Registration and Planning
9. Physical Planning	Provide orderly basis for urban development. Improve quality of life. Protect environment	Physical Planning Act Local Government Act Building by-laws	Preparation of various development plans

**Source: Yahya, 1987**

A Kenyan scholar. Yahya (1976) observed wryly that these formal measures were far removed from reality and in their place were unorthodox tactics policies peculiar to Kenya as a country, which influence the prevailing practice. He categorized the popular ones as:

- **Big Fish syndrome-** a big fish being an imaginary of real influential person who uses his power in a clandestine or “fishy” manner. He is regarded as wealthy, powerful and unscrupulous who easily influences decisions on matter related to land.
- **Grabbing-**which in Kenya means, amassing land for speculative and sale purposes or in short the scramble for material wealth. A ceiling on the amount of land owned has been called for since independence but to no avail.
- **Scapegoating-** implying that others are used as scapegoats when things go wrong. This is especially true with our Local Authorities who always blame their incapacity’s on the lack of autonomy from the central government. Lately, in Kenya every single problem is blamed on the “economy”.
- **Violence-intimidation** - violence are morally wrong but have been used in policy-making on land issues in Kenya. The tribal clashes are a painful reminder of how violence can and has been policy instrument in the past years albeit, an ugly one.
- **Sabotaging-**frustrating somebody’ plans or projects to consolidate one’s own position so as to extend the sphere of influence. This one is a favourite with politicians and more often the battleground is land and related matters.
- **Conspicuous nation building,** it refers to a situation where development must not only take place but must be seen to be taking place. The more conspicuous the letters of allotment are issued to slum dwellers and squatters alike, the greater the political mileage.

A concept emerging is that land policy is influenced by non-conventional policies, which are really political or power-related. This informal processes and attitudes form an important input into policy-making. And this trend has not been spared from

the study area. Indeed with the growing demand for urban land, both the political and prevailing land policies are simultaneously being used to allocate land as a resource. Sometimes with positive and on other occasions with negative results as will be shown later in the study.

## **5.8 CONCLUSION**

From the above discussion what emerges is that Kenya seems to have adequate legal and policy framework to guide urban development. What is evidently lacking is the ability to coordinate all agencies and institutions involved one way or another in planning issues.

Lack of coordination and networking among the various stakeholders whose activities impact on the configuration of land use is apparently missing with the result that the coordinating institutions have not been able to grasp the dynamic nature of the urban fringe problems and the need for an integrated approach in solutions that they offer.

There is also the issue of multiplicity of scattered pieces of legislation dealing with planning, enforced by different government institutions some of which have no planning capacity. At present, government land use policies are little more than an aggregate of unrelated and often conflicting decisions made by single purpose agencies, local and regional governments and private individuals. All this leads to conflict of interest. At the same time, some planning institutions are defined by legislation, which limit their powers, and authorities.

There is also institutional inertia due to neglect by the government coupled with lack of innovative abilities to respond to political and dynamic socio-economic demands. Lack of an explicit land use policy in Kenya as a whole means that there is no clear direction on how to control unrestricted growth in the forest. All these factors combine in a show of the failure of the planning system to capture both the speed and directions of urban growth, more so in the study area.

## CHAPTER 6

### THE ROLE OF URBAN FORESTRY IN THE CITY OF NAIROBI

#### 6.0 Introduction

This chapter examines the role played by Urban Forestry in the city of Nairobi. Urban forestry plays a vital role in intercepting precipitation and channelling run-off into the rivers that passes through the forest. It is also important in terms of atmospheric exchange and climate regulation, as well as protecting and enhancing soil stability and fertility. Therefore urban forestry has significant economic, social, physical and environmental effects as discussed below.

#### 6.1 Greening Effect

It should be noted that, there is a long history of tree cultivation in urban settlements for the purpose of enhancing their visual character. A part from adding variety and richness to urban landscapes with their different foliage and blossoms, heights, colours and shapes, trees can enhance the living environment by reducing glare and reflection. They can add to the coherence of an urban landscape complementing architectural features.

Trees constitute an important ingredient of the cultural landscape of human settlements: amenity tree in a given city can be intercepted as interplay between nature and culture. Trees in an urban environment help establish a sense of cultural identity. Thus, the limited number of species planted as amenity trees by Europeans in their overseas colonies is possibly also in part reflection of the need for familiarity. Even today the traveller who has visited Nairobi and seen the mauve blossoms of Jacaranda Mimosifolia often has a sense of comfort in visiting other colony and seeing the same sight. There is some evidence to justify the sense of well being which at least for some people is endangered by a tree filled landscape, like christmas tree (*Cupressus Forulass* or *Lusitancia*) along Limuru Road (**Plate 2**). These trees have been sold since 1960 and are sold for over Khs3000 for the upper 3 meters and they sell like hot cakes during the christmas festivals. Ten percent of the people interviewed claimed that, urban scenes dominated by trees foster (psychological) restoration because they elicit positive feelings, reduce toned



emotions such as fear, anger and sadness effectively hold interest and accordingly might reduce stressful thoughts with regards to physiological benefits.

**Plate2: Christmas tree**



Cypress tree normally referred to as Christmas tree

## **6.2 Educational Value**

Urban parks, and particularly botanical gardens with their wide collection of trees and other plants, have huge educational potential. While this tends to have been exploited to a greater extent in developed countries, Karura forest is also extensively used as an educational resource for students from various institutions of learning, this include Moi University, Egerton University, the University of Nairobi and some secondary schools who visit the forest for their plant identification and botanical studies. The researcher witnessed this when he met a group of Egerton University students being taken around by Mr Mwadima the Karura Forest Officer

### **6.3 A Habitat for Wildlife And A Place of Worship.**

Forests are fundamental to sustain wildlife and enrich biodiversity, which directly benefits the nations tourism industry. Many ecosystems are highly dependant on the health status of our forests. Karura forest is a home to monkeys, antelopes, birds and butterflies which if well exploited can be a source of tourist attraction coupled with the presence of caves in the forest which can earn the country foreign exchange. Plate 3 below shows a cave in the study area, the white substance is ash resulting from the fire, which the worshippers use to warm themselves when they retreat for their spiritual nourishment. Infact according to the elders intervied, the forests and caves in particular often provided shelter to the people seeking to escape the hardships of the Masaai that ravaged the area. It was also used as a centre to appease the gods for wrongs done and the consequent disasters infected to the community. The community elders achieved this through regular sacrifices. The caves have bats, they are used for prayers for good health, and prayers for children, and the users of these caves believe that the caves have answers to their prayers as they get power and confidence from here.



A guard inside a cave in the forest this can be exploited as a tourist site, as it is used for religious and ceremonial purposes

#### 6.4 Carving Trees

Wooden handicraft products carvings, utensils, bows, arrows, stools and toothbrushes e.t.c. Which have been in the market for along time are also produced from Karura Forest. The Muhugu tree in the study area has been used for long in carving until 1998 when their harvesting was banned because of the dwindling number hence the government encouraged the use of Jacaranda trees in carving since they are early maturing. It has been estimated that there are 60,000 woodcarvers in Kenya, with each caver generating an additional five jobs in harvesting of the wood, sanding and polishing of the finished carvings. The annual value of exported carving has mushroomed from around US\$ 20M in 2001 therefore the country will earn more foreign exchange if more carving trees were planted.

#### **Plate 4: Carving trees**



Jacaranda tree in the study area used for carving.

#### **6.5 Source of Income**

From the analysis, 20 percent of the household interviewed harvest firewood for sale to earn a living, especially the low-income people of Huruma and Mathare. Those who were interviewed expressed the view that the extra coins earned enable them to buy other household goods and clothes for their children.

#### **6.6 Source of fuel wood.**

The primary source of energy in many towns and cities of the world is wood fuel, either as wood or charcoal. Among poorer people it is also common for small twigs and leaves to be burned for fuel. 80 percent of the people interviewed indicated fuel wood as their source of energy, and to a large extent get the supply of this wood from Karura Forest. It should be noted that among very poor women in the slum

areas of Huruma and Mathare collect firewood from this forest but they complained of being harassed by the forest officers as if they were thieves yet they only collected dry (dead) wood. Not only can they not afford the regular purchase of fuel such as paraffin or gas, there is no point in them saving for a costly appliance that they have no secure place in which to keep.

According to the Forest Officer in charge of Karura, there is “ wood for work programme” where these women are assigned a portion to work on which may involve clearing Lantana, weeding or watering the nursery and once the task is accomplished they are allowed to harvest a head load of firewood. This has proved a popular programme since a part from the women benefiting the government also benefits from the work they do in the forest hence a mutual benefit. A large number of fuel wood carriers and their families depend upon this work for their livelihood. Most of these carriers are women and youths under 25 years old and poorly educated (almost 70 percent are illiterate). They are often recent migrants to the city, and the majority (60 percent) are the head of their household, fuel wood gathering and carrying, is a clearly arduous work, and often brings them into conflict with state officials responsible for forest control and management, notably Forest Officers and guards. The latter see the women as illegal destroyers of the forest, who are conducting their activities purely for immediate financial gain without any thought for forest conservation. They felt since they are not cutting down any trees they should be allowed to harvest dry branches for their use.

From the women interviewed it is not ignorance, lack of education, or desire for quick and easy profits that has led them into fuel wood carrying it is poverty and lack of any alternative means of income generation.

### **6.7 Source of Timber and Poles**

Urban settlements consume vast amounts of timber for the construction of buildings and furniture. At first thought, the current potential for supplying such needs from within and immediately around towns and cities would appear to be slim. However, according to the Forest Officer, the eucalyptus spp harvested from Karura forest and poles are supplied to the construction industry within the city.

## 6.8 Watershed Management

An issue related to the use of trees and forests in controlling soil erosion is that of their use as a watershed catchment cover. The Forest Officers state that the rivers which pass through the forest are purified as the leaves act as a sponge, this is important because water from these rivers is used by communities in the north of the forest for domestic purpose, and also Roselyn Garden use water from these rivers in watering their seedlings.

## 6.9 Conclusion

The Forest Officers see the women as illegal destroyers of the forest, who are conducting their activities for immediate financial gain without any thought for forest conservation. Yet the study shows that the 80 percent of the women (Table 6.1) were amazingly conscious about the value of the forest. 52 percent indicated the fact that trees are not only useful as a source of income, fuel wood and construction material but essential in beauty and attracting rain.

**Table 6.1 Role of urban forestry**

<b>Role</b>	<b>No. Of H/hold</b>	<b>Percentage</b>
<b>Fuel wood</b>	20	40
<b>Construction Material</b>	4	8
<b>Soil erosion protection</b>	5	10
<b>Green beauty</b>	15	30
<b>Attract rain</b>	6	12
<b>TOTAL</b>	<b>50</b>	<b>100</b>

**Source: Compiled by author, 2004**

The study further showed that, it is not ignorance, a lack of education, or desire for quick and easy money that has led the women into fuel wood carrying; it is the poverty and lack of any alternative.

## CHAPTER 7

### PLANNING CHALLENGES IN THE STUDY AREA

#### 7.0 Introduction

From the foregoing chapters, in which an attempt has been made to introduce the study area, this chapter goes further to evaluate the study objectives against research findings.

It is based on the premise that, urbanization as a force has brought about various changes in the use and control of land in the study area. Emphasis is placed on the field findings and observations made. An analysis of these findings is drawn out in graphics, photography and general discussions.

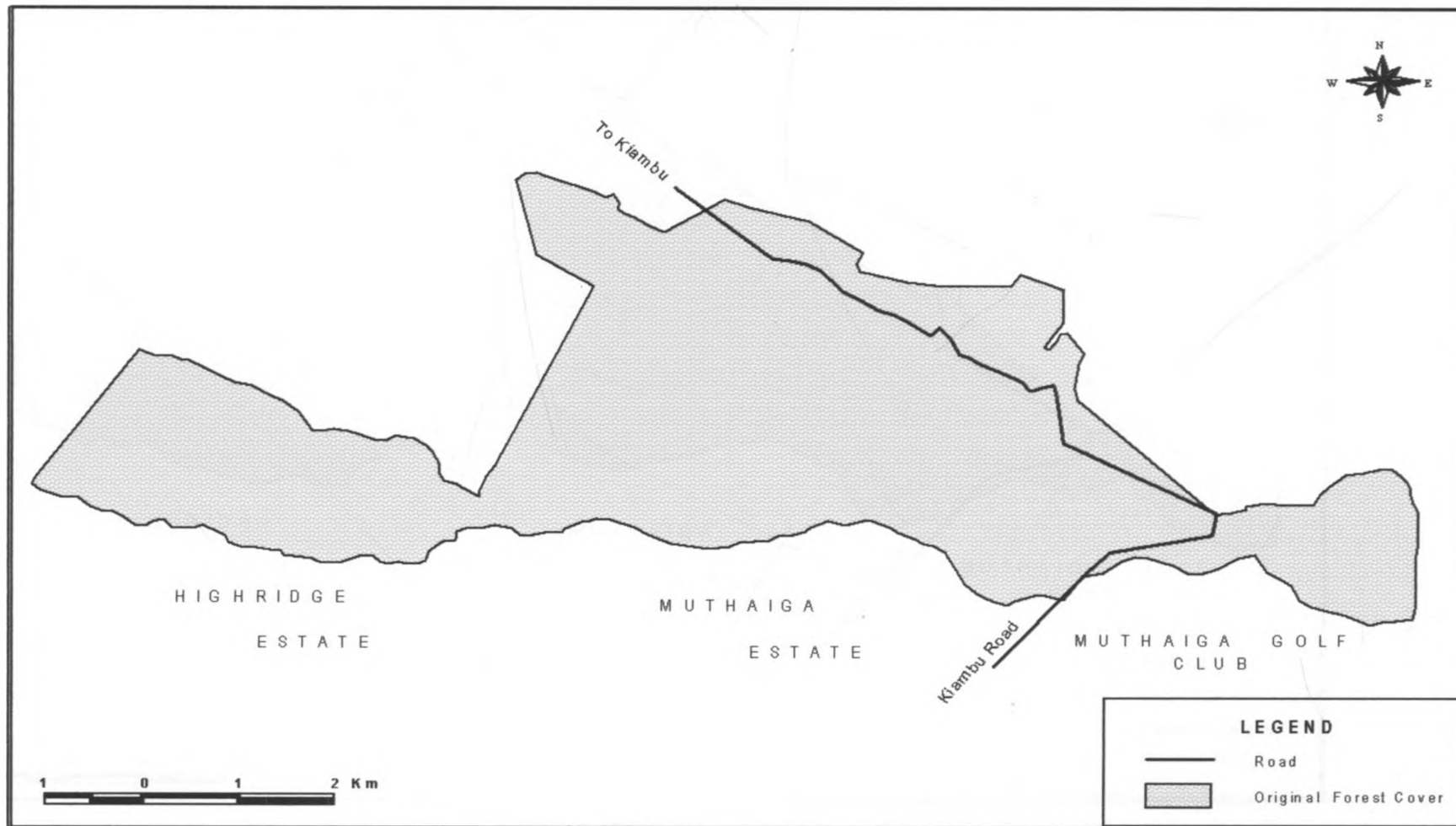
#### 7.1 General Excision Pattern

The Forest Officer in charge of Karura forest stated that out of the total Karura forestland of 1041 hectares, only 541 hectares remain unallocated. Most of the 500 hectares allotment took place between 1992 and 1996. It is also during this time that the forest cover in the entire country was depleted to the current 1.7 percent less than the 10 percent world recommended forest cover.

In 1998 Nairobi residents became aware that clearance of the forest for high cost housing construction was being undertaken within the 1041 hectare Karura forest reserve. As people became aware that the Commissioner of Lands had excised over half the area (Map 7.2) for private development, civil protest grew which resulted in some people clashing with police as in **Plate 5**.

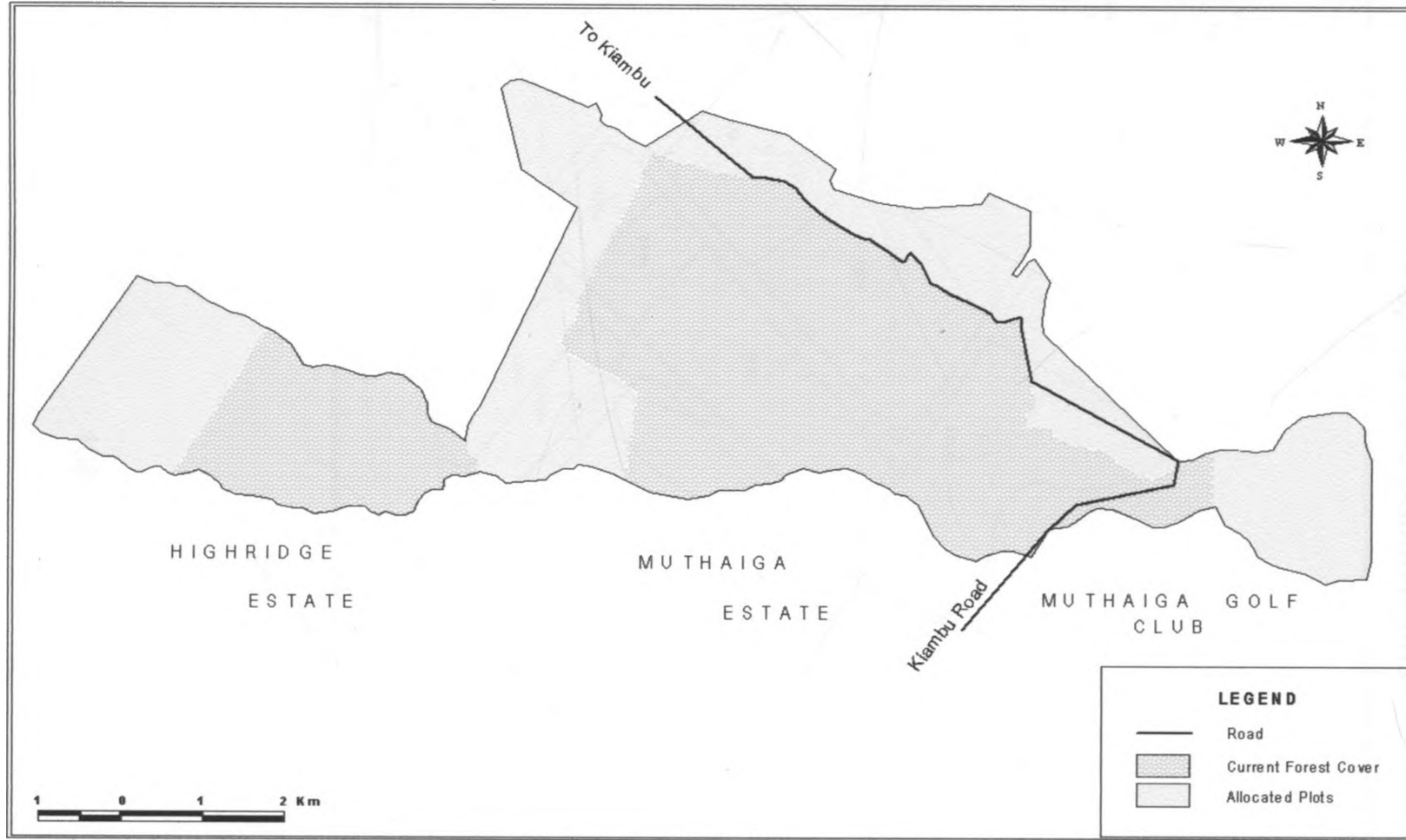
Local environmental organizations led the protests supported by numbers of angry citizens. When they protested against the forest degradation and the secret change of user that was taking place in the study area.

Map 7.1 Original Forest Cover

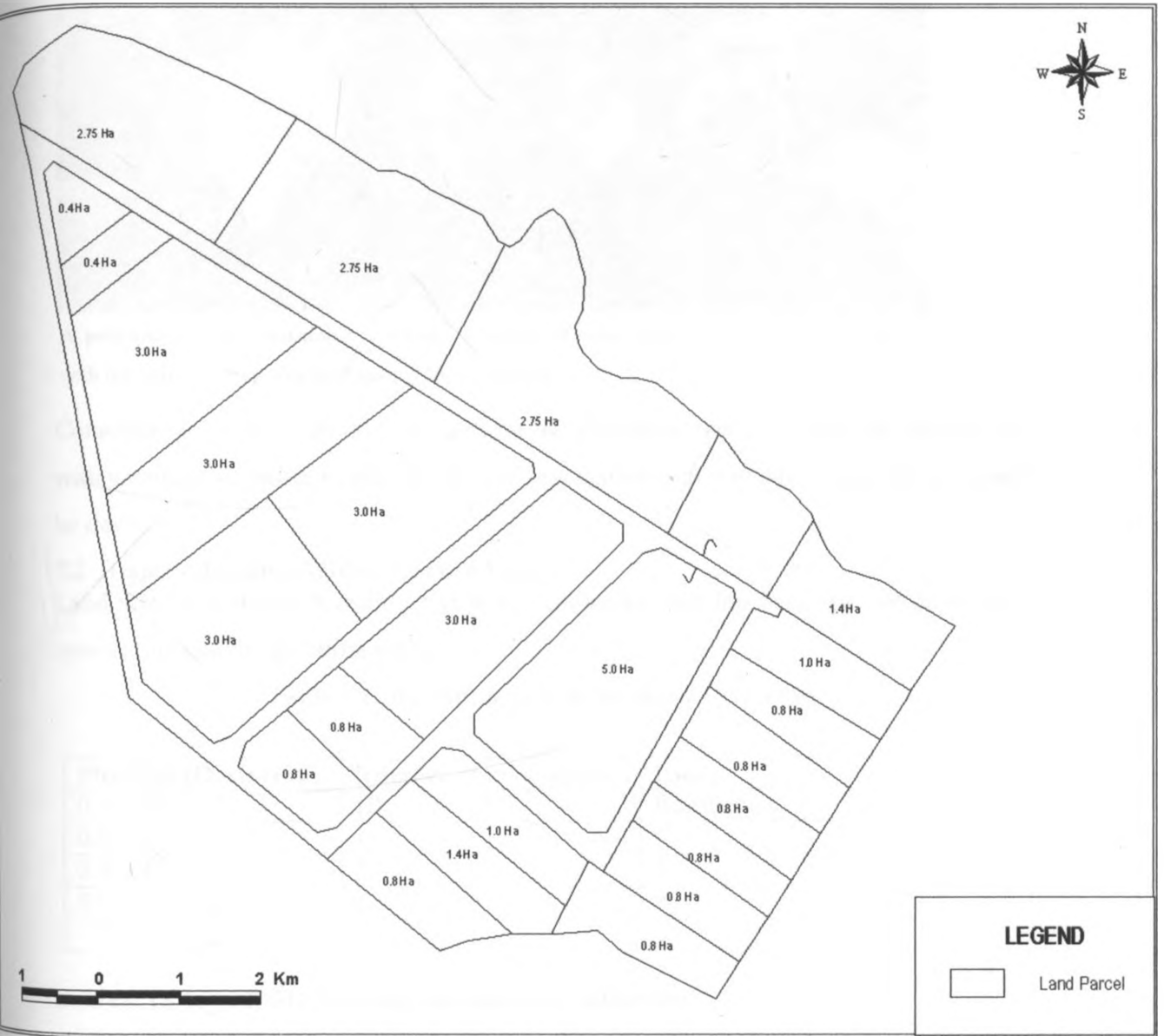




Map 7.2 Current Status of Karura Forest



# Map 7.3 Land Subdivisions



**Plate 5 Demonstrators clash with Police**



A well-known environmentalist, Professor Wangari Maathai was among those who clashed with the police as they protested against forest allocation.

Construction on the plots purchased from the Commissioner of Lands has ceased, but with no single surrender of title deeds. The expectation is that in due course, the plots will be developed.

## **7.2 Land Allocation Within Karura Forest**

Land allocation within Karura forest is a phenomenon that has been spurred on by land speculation and the grabbing mania.

**Table 7.1 Allocation Trends Between 1992-1996**

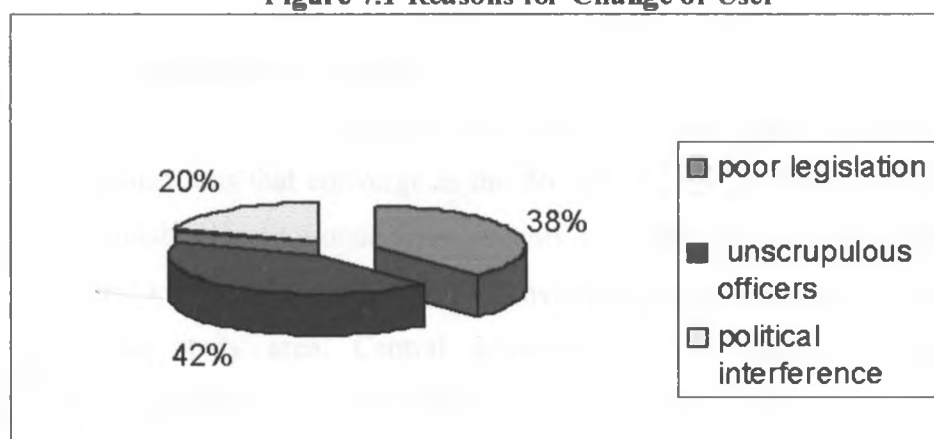
<b>Plot Size (Hectares)</b>	<b>Number of allocations</b>	<b>User</b>
0.3 – 0.5	10	Residential
0.8 – 1	14	“
2.5 – 3	7	“
5+	1	“

**Source: (Kenya 2004), Ministry of lands and Settlement**

If this trend was to continue over the next years then we envisage an area without vegetation cover. This is home to skykes monkeys, rare bush pigs, Sunni antelopes and hundreds of bird species; licensed herbalists tap medicinal plants in Karura forest. So if the forest goes, one suspects that our grand children will have some extremely unkind thoughts towards us for having left them with a monstrous

problem so difficult to solve. It is also realized from the field survey that the reason for this change of user is the demand for land in the forest for speculation purpose, people hoping to acquire the land at a low premium and dispose it at a higher price. Of the 50 respondents, 38% felt that the change of user is as a result of lack of harmony in legislation governing forests, 42% cited unscrupulous government officials cited corruption, 20% had political interference as the reason for change of user in the study area as shown in the pie chart below.

**Figure 7.1 Reasons for Change of User**



Source: Compiled by Author, 2004

### 7.3 Loss of Forestland

As land is converted to new developments and forestland is lost, the role of forest in the study area becomes increasingly marginalized, despite its potential for climate and air purification. Although mainly now a (poorly managed) plantation forest Karura is valued in the city as one of its few remaining green spaces. The powers given to the Commissioner of Lands to dispose of government land and without necessarily limiting those to public benefit rendered the excisions perfectly legal - with one exception. The Government Lands Act requires land in urban areas to be disposed of through auction. Karura forest is indisputably within an urban area. There is no evidence that auctions ever took place, even the 28 days notice before any excision was not observed.

The field survey indicates that of respondents interviewed, only 25.2% are aware of method of public auction, 64.4% are not aware of the auction. The immediate and

long-term consequences of all the above is loss of the forest hence increased floods, change in climate conditions and, disappearance of the wildlife in the forest.

Although it is not the responsibility of councils to engage in direct support of urban forest some activities can be undertaken to encourage its preservation. There is need for the council to identify under which office the coordination and implementation of urban forestry should be placed because it seems that the current practice does not recognize the activity.

#### **7.4 Institutional Capacity**

One of the most salient characteristics of the study area is the diversity of organizations that converge in the decision making process, and the lack of clearly established institutional arrangements to articulate their interventions. There are therefore myriads of local groups, environment, women, church, and political parties in the study area. Central government like Director of Physical Planning, Commissioner of Lands, Forest Conservator, NGO's like the Green Belt Movement are also institutions with a stake in the study area. Unclear planning and operational responsibilities between sector agencies characterize this phenomenon. Separate sector agencies plan for land alienation; the Commissioner of Lands' office can secretly allocate the land without necessarily consulting the other stakeholders like the neighbouring community, and this result in a lot of controversies. Reaching a consensus is thus the planning challenge. An analysis of key planning institutions in the study area and related problems is highlighted here below.

##### **7.4.1 Capacity of the Karura Forest Office**

The Karura forest office has not been able to afford the luxury of large well-trained officers to enforce the law in the study area. The office has only 2 Forest Officers who are not enough to handle the potential threat from the would be invaders of the forest the Forest Officers sometimes play the role of policemen although they are not trained to be police officers. The department has only one old Land Rover (**plate 6**), which is used for patrol in the forest, the officer in charge of Karura talks of frequent mechanical breakdown of the vehicle, which makes their work difficult. Also the forest guards attached to the forest are not enough to patrol the forest.

**Plate 6: An Old Land Rover**



An old Land Rover which experiences frequent breakdowns

**Plate 7: Researcher with a Forest Guard**



One of the forest guards in charge of Karura forest

#### **7.4.2 The City Council of Nairobi**

The City Council of Nairobi does not have a department that is solely responsible for Urban Forestry, the council official claim that it is the responsibility of the forest department to manage its own resources. In addition, he stated that the approval of building plans has been going on despite the public outcry on the forest allocation. The illegally allocated plots have been subdivided into smaller portions, The City Council has treated this as if it was developed plots being subdivided yet this are new allotments which are supposed to be developed before subdivision, an example of subdivision is in Fig 7.3. Approval fee is a source of revenue to the council and that there is no law which bar them from approving the plans within the study area and he categorically stated they will approve the plan as long as they are not in contravention of any law.

In spite of procedure for land allocation supposed to be through public action, proper procedure of land allocation is through public auction where by the people who meet the requirement are issued with a letter of allotment (appendix 7),

stipulating the development conditions and asking the allottee to honour the contract by making payment to the Government. This procedure was not followed in Karura allocation, hence making the allocation null and void, the City Council of Nairobi treated the allocation as if it was a subdivision of an old plot, such that in 30<sup>th</sup> May 1996 the Nairobi City Council at its Town Planning Committee meeting, recommended for approval of subdivision of urban forestry. The council has opted to be passive as far as Urban Forestry is concerned and thus excision has continued unabated and is likely to continue unless the council makes by-laws governing the forest. This is a failure in the duty of the city council in terms of development control on the use of land.

### **7.5 Lack of Harmony in Existing Legislations**

Despite the existence of legal instruments, there has not been proper and comprehensive land use/environmental planning and coordination in Kenya. Instead, land use planning activities have been addressed largely at sectoral level. The consequence of this has been uncoordinated and unsuitable land uses, conflicts and environmental degradation and loss of biodiversity.

The study established that, out of the 50 households sampled, 70 percent had titles to their plots. The landowners had title deeds that under Registration of Titles Act Cap 281 section 23 (1), once the proprietor has been issued with a certificate by the registrar, that title shall be taken by the court as conclusive evidence that the person named there in as the proprietor of the land is the absolute and indefensible owner.

This gives the owner (allottee) the right to use the land as he deems fit and it is only the Attorney general who can revoke the registration of any registered land. This legislation protects the allottee of any registered land. This legislation protects the allottee when carrying out their activities. The Physical Planning Act give powers to the Director of Planning to prepare with reference to any Government land, Trust land or private land within the area of authority of a city, municipal, town or urban council a local physical development plan. As analyses in the previous chapters has shown, there is no substantive conflict in any section of the statutes but due to lack of harmonization of various administrative procedures by the relevant authorities, there appear as if there is a conflict in the law. The Director of Physical Planning

candidly puts it that, the problem arises from the planners, Surveyors, Land officers, and the local authorities that have not harmonized their administrative procedures but continue executing their respective statutes independently without coordination and reference to relevant Acts. Others continue to apply the defunct procedure under the repealed Town Planning Act and Land Planning Act.

### **7.6 Failure to Prepare Guidelines for Land use - A Local Physical Development Plan**

An approved local physical development plan is the tool for guiding and coordinating development of infrastructure facilities and services for a local authority area and for specific control of the use and development of land or for the provision of any land for public purpose. The study area does not have an approved local physical development plan. Although the responsibility of preparing development plan lies within the Physical Planning Department, the initiative can be from the Local Authority if the Physical Planning Department has been unable to do so.

During the study, the Director of Physical Planning said that the study area operated on outdated plan dating back to 1973, although plans are underway to prepare the Nairobi metropolitan plan government financing is inadequate and its mode of quarterly allocations is not the best. The city council on the other hand is not ready to fund fully the preparation of the plan as it argues that it is the responsibility of the central government to fund such an exercise. There is little liaison between the Physical Planning department and the City Council. As a result there is no basis for development control as far as urban forest is concerned and the provision of proper guidelines to manage the forest resource.

This explains why excision of the forest has occurred. The City Council has failed in its duty because according to PPA sec 29 (e), it should formulate by-laws to regulate zoning in respect to use and density of development. Apart from the Nairobi metropolitan growth strategy plan, there are no zoning by-laws and therefore the preparation of the physical development plan for the area is hampered as no zoning has been done to determine what areas should fall under what activity and what the minimum land sizes should be.



### 7.7 The Future of Urban Forestry in the city of Nairobi.

The future of UF in the city lies on the potential role it plays and the political will in the country. Karura forest not only helps absorb polluting gases and provide much needed oxygen, it also offers opportunity for recreation. The council has the potential of conserving and managing the forest. This will however, depend on how integrated forestry will be in the urban system through supportive policies and actions by the City Council and the Central Government.

At individual households, diverse reasons were given by different household on the intention to have a forest in the city. Out of the 50 households interviewed, about 53% were firm to protect the forest for the future, while the remaining 47% did not intend to do so.

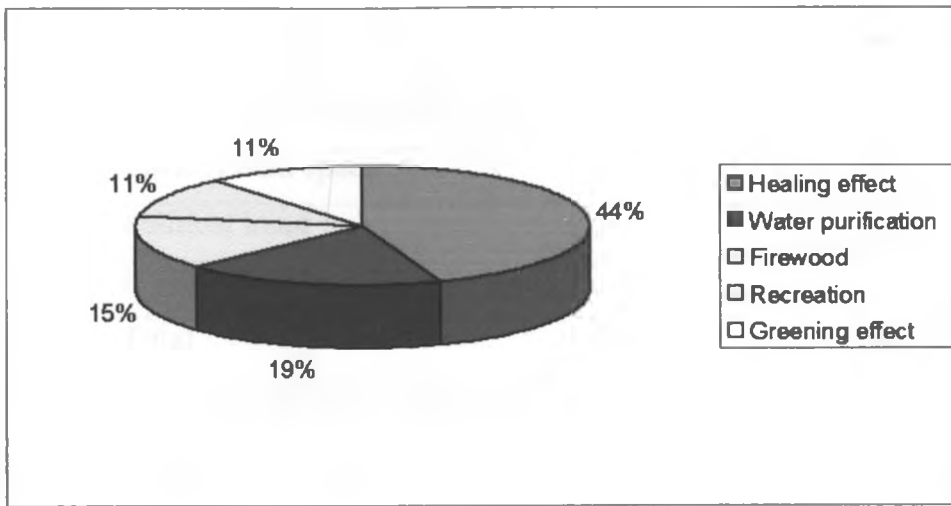
Of the 53 per cent, Table 7.1 and Figure 7.2 about 11.1 per cent argued that forestry is vital since it provides the greening effect and modify the climate. About 15 percent favour the existence of the forest since it is a source of firewood and other fuel wood for their use. About 18.5 percent perceive forestry to be an important activity in purifying the river water. 11.1 per cent of the households considered forestry as a place where they can turn to for recreation activities especially in the evening and weekends while the remaining 44.4 per cent (majority) of the households need the forest because of its healing effect and they enjoy seeing it.

**Table 7.2: Reasons for Urban Forestry**

<b>Reason</b>	<b>No. Of h/holds</b>	<b>Valid percentage</b>
<b>Healing effect</b>	12	44.4
<b>Water purification</b>	5	18.5
<b>Firewood</b>	4	14.9
<b>Recreation</b>	3	11.1
<b>Greening effect</b>	3	1.1
<b>Total</b>	<b>27</b>	<b>100</b>

**Source: compiled by Author, 2004**

Figure 7.2 Why Urban Forestry



Source: Compiled by Author, 2004

Of the 47 percent of the household who do not want the forest, about 39 percent perceived forestry as not being profitable and they preferred residential development on forestland, which they perceived to be more profitable, compared to forestry. About 13 percent cited pressure from encroaching new land uses such as residential and commercial developments as a threat to forestry in future. They said that those new land users would deplete the forest resource. About 22 percent cited lack of land/space for future urban expansion as a threat to forestry due to population pressure. Only 8.8 percent of the household cited a political hand in the forest excision and blamed it for the loss of the forest. The remaining 17.40 percent of the household said that due to the nature of legislation there are many loopholes exploited by land grabbers and government officers to exercise the forest. These reasons are summarized the Table 7.3

**Table 7.3 Reasons Against Urban Forestry**

<b>Reason</b>	<b>No. Of house holds</b>	<b>Valid percentage</b>
<b>Not profitable</b>	9	39.1
<b>Pressure from other land uses</b>	3	13
<b>Lack of land space</b>	5	21.7
<b>Political hand</b>	2	8.8
<b>Legislations</b>	4	17.4
<b>Total</b>	<b>23</b>	<b>100</b>

**Source: Compiled by author, 2004**

All these factors discussed will be influenced by the land use planning strategy that the central government and the city council of Nairobi will take in future.

### **7.8 Integrating Forestry in the Urban System**

The need to integrate forestry in the city of Nairobi arises from its potential of greening the city and ameliorating the would be harsh climatic conditions. Recent studies have shown that this activity is not likely to die out from the Local Authority boundaries and therefore is likely to conflict with other urban land uses if not properly managed. In addition, the activity has co-existed with the other land uses for a long period and has not been found to have unhealthy effects. Also, the prevailing opportunities for urban forestry in the city of Nairobi identified in this study can only be fully exploited through the integration of the practice in the urban system. This therefore, shows the need to integrate and accommodate forestry into the urban system.

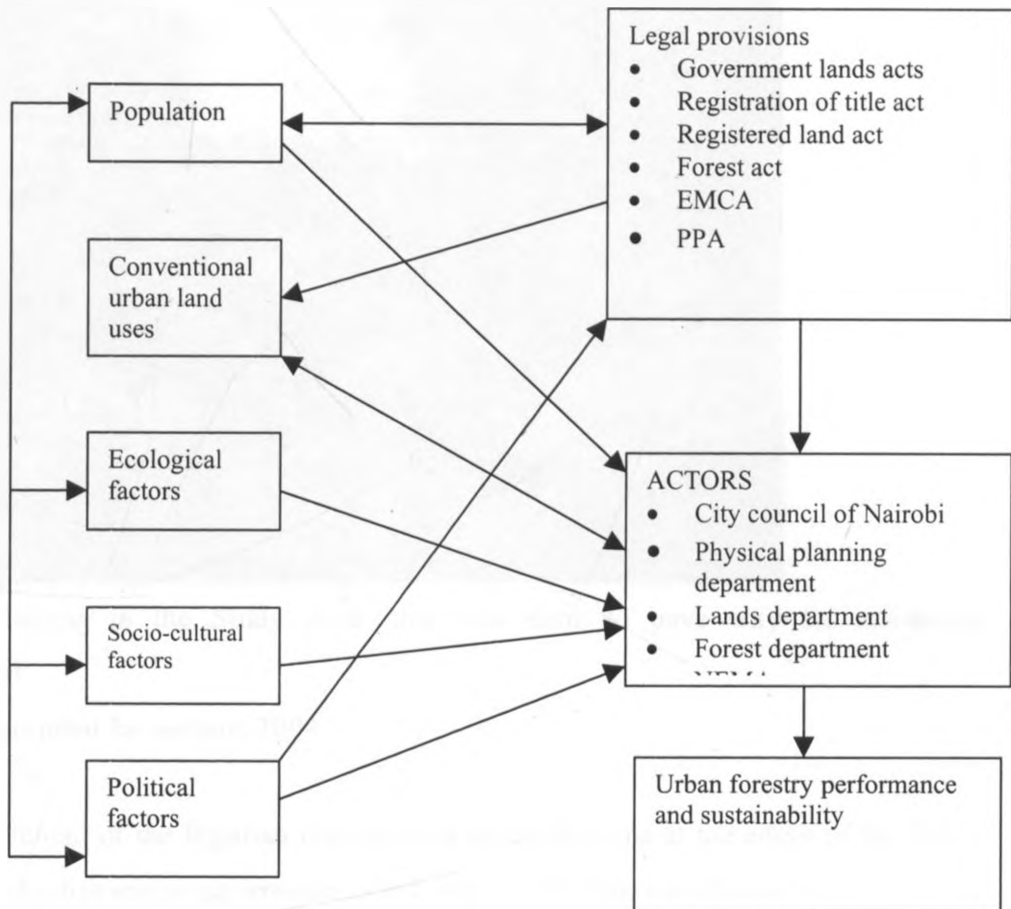
The public view that the forest acts, as a hide out for thugs is not a sufficient reason enough to disregard the activity, when considered against its usefulness to the residents of Nairobi. The economic consideration of the activity as low value should not be given strong emphasis. Consideration of several factors should be the basis of allocating urban land for forestry since it is both an economic as well as a social activity embedded on ecology. These should include the socio-cultural and economic factors, the extent of the local authority boundaries, and the size of the

CBD, population dynamics, the most necessary conventional urban land uses, and primarily the ecological factors of an area.

The interaction of these factors with the legal provisions is highlighted in Figure 7.4. Different actors including the local authorities the Physical Planning department and the community should all be involved in the planning and management of urban forestry if it has to be compatible with the other land uses. Integration also involves sensitising the local community on the wise use of the forest resources. Sensitisation should also be on avoiding over exploitation of the indigenous trees used in carving and instead advocate for the use of Jacaranda, which is an early maturing tree. The herbalists need to be educated on the negative effects of ring barking which will slowly kills the medicinal plants hence degradation of the forest. The local community should be allowed to collect honey, firewood and grass from the forest as they would act as informers if they spot any funny (illegal) activities going on in the forest. The Forest Officer should work harmoniously with this community instead of treating them with a lot of hostilities as if they don't have a stake in the forest.

Integration and accommodation of urban forestry in the urban system will only be possible if the various laws that govern the ownership and use of land are amended and harmonized. Integration of forestry to the urban system arises from its contribution to the urban environment as one component of the whole urban system with its own forward and backward linkages as conceptualised in this study.

**Figure 7.4: Integration of forestry into urban system: factors to consider and their link with legal provisions**



**Source: Compiled by author, 2004**

### 7.9 Environmental Degradation

When urban settlement disperses over an area, conflict arises when pressure is put on the natural and physical environment by the built environment and human activities. In the study area, this manifests itself in several ways:

- Depletion of forest especially areas targeted for high residential estates as in plate 8 the land was allocated and forest cut down to pave way for developments, this change of user was done secretly since the laid down procedures were never followed.

### Plate 8 Forest Degradation



Forest Clearing in the Study Area, this was done to pave way for residential development

Source: Compiled by author, 2004

- Encroachment of the Riparian reserves and illegal farming at the edges of the forest. These activities encourage erosion as red water in the rivers evidences it.

#### 7.10 OTHER NON-SPATIAL CHALLENGES

The spatial components or challenges of the study area have fairly been identified. They are elements geared towards land uses and tend to have a direct linkage to planning, physical conditions and geographic locations within the study area. However, there are also non-spatial challenges often dealing with quality aspects, rules and regulations, which require a spatial component in order to be functional. What should be lost is the strong linkage between both spatial and non-spatial challenges. Some of them are discussed below as they affect the planning function in the study area.

### **7.10.1 Social risk and safety**

This is a direct relationship between the physical structure and the social result. Leapfrog urban development, together with nature's assets of forests, unequal distribution of opportunities, along with the frustration of poverty, have resulted in high crime levels in the forest. People hijacked are dumped in the forest after having been raped, mugged and assaulted, the forest provides conducive atmosphere for the crimes since there is no patrolling by the law enforcers with the forest.

### **7.10.2 Political influence and trade-offs**

Political trade-offs seem to have played a centre stage in the illegal forest allocation; people were rewarded for the political roles they played in the political equation at that time by being allocated land within the forest. Political leaders, it should be noted often focus on immediate highly visible gains leading to short-term "band-aid" solutions. This was discussed in Chapter Five as one of the unorthodox land policies applied in Kenya. More often than not, there is always political unwillingness to confront issues of land concentration and speculation and this has impeded implementation of planning strategies.

## CHAPTER 8

### SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSIONS

#### 8.0 Introduction

This chapter presents a summary of findings that arose from data analysis and observations made during the fieldwork. This forms the basis upon which conclusions and recommendations are drawn. The focus of the study was to examine the practice of UF within the context of planning law.

#### 8.1 Summary of Findings

One of the objectives was to examine the effectiveness and limitations of the institutions, legal and policy framework for the management of urban forestry. As discussed in the text, several legislations and institutions exist which govern the management of urban forestry. These include the Local Government Act Cap 265 Section 12 that empowers the Minister for Local Government to establish a municipal/city council or exercise an area to be or to cease to be a municipal. This act does not give the public any legal stand to prosecute in cases of illegal land allocation within the study area as sited in one of the court cases in the text.

The Physical Planning Act Section 24 (1) empowers the Director of Physical Planning to prepare with reference to any Government Land, Trust Land or Private Land within the area of authority of a city, municipal, town or urban council a local physical development plan. The study area recognizes the failure by the City Council of Nairobi to evolve a realistic planning strategy that would guide and save the forest from being degraded.

From all the evidence brought to the surface by the study, there definitely exists a planning problem in the study area. This problem can be summarised as illegal allocation brought about by lack of harmony in existing land laws and political interference in land administration system and above all lack of willingness to enforce the law. The problem manifests itself in rampant subdivision of forestland into residential holdings as in, Map7.3 lack of proper procedures in land allocation,



lack of adequate physical development plan to guide development mostly in environmentally sensitive areas.

The Government Land Act, Cap 280, deals with government land, which includes forest reserves, other government reserves, and townships, alienated and unalienated government land and national parks. In this Act, Section 3 gives the president powers, subject to any other written law, to *"make grants or dispositions of any estates, interest or rights in or over alienated government land"*. The powers of the president over government land also extend to forest reserves, because these are administered under the government land tenure. It appears that under the Government Lands Act once a grant has been issued, the registrar cannot cancel it unless the interest contained therein has been determined. The Registrar however has power under section 120 and 121 to correct errors and cancel entries where there are errors or cancel and destroy documents where the interest has ceased to exist. But it should be noted that usually after the grant has been issued the land is either brought under the Registration of Title Act Cap 281 or the Registered Land Act (RLA) Cap 300.

Under section 142 of RLA the Registrar may rectify formal errors of his own omission. The court on the other hand may rectify by cancellation of fraudulently obtained titles but not when the titles is created by a first registration as in the study area.

This does not appear to be a clear legal framework or a competent authority or well-defined parameters and/or grounds of cancellation of title, which may have been obtained, in questionable, irregular or even illegal circumstances. This would call for urgent amendment to the laws and establish a legal framework for the exercise to define the illegality.

The Forest Act Cap 385 states, "Forest area means an area of land declared under Section 4 to be a forest area". The act addresses preservation, protection, management, enforcement and utilization of forest and forest resources on government land. But the same Section 4 of the Forest Act allows for the (de) degazettment of forest reserves. This states that the minister may from time to time alter those boundaries, declare that a forest area shall cease to be a forest area. But

before a declaration is made, twenty-eight days notice of the intention to make the declaration shall be published by the minister in the gazette this did not happen in the study area, therefore, allocation was done without following the procedure.

The Environmental Management Co-ordination Act (EMCA) part VI, (s. 58) of the Act makes it mandatory for Environmental Impact Assessment (EIA) to be conducted before the commencement of projects involving urban development, water bodies, transportation, mining, agriculture and forestry-related activities. The specific forestry-related activities requiring EIAs include timber harvesting, clearance of forest areas and reforestation and afforestation. From the data collected there is no evidence that EIA was done before allocation, hence rendering the allocation null and void. EMCA in general has limited community involvement in terms of the management of resources especially in their capacities as natural resource user groups and their role in the sustainable utilisation of specific natural resources.

Registration of Titles Act Cap 281 Section 23(1) states that once a proprietor has been issued with a certificate of title by the registrar, the courts shall take the title as conclusive evidence that the person named there as a proprietor of the land is the absolute and indefeasible owner. This makes it difficult to revoke the land that has been illegally allocated in the study area. It is only the attorney general who can revoke the registration of any Registered Land.

The study also noted fragmentation and all other aspects of Central government. At present there are various government institutions whose mandates have relevance to the management of forests the total government line ministries at least 12 have functions that directly relate to the management of forests. Various departments which either directly or indirectly deals with forest management tend to hide behind veils of confidentiality so that it is not often possible to tell how rational decision making is. The inability to co-ordinate fully the different branches of local and central government make it difficult for proper urban forestry management.

Although memorandum of understanding signed between institutions represents a step forward in increasing the collaboration between different agencies mandated

with the management of natural resources, they are freed with several setbacks. One of the major shortcomings of the Memorandum of understanding is that they are not legally binding on the agencies. In addition, due to levels of financial and technical resources available to these agencies they have differing levels of implementation capabilities, which, in turn could adversely affect their effects of collaboration.

Some of the key planning issues and challenges are;

- There is failure to prepare guidelines for land use, more specifically failure to formulate by-laws to regulate zoning in respect to use or change of user in the study area.
- There is an apparent fragmented land use policy laws on land ownership, use and planning,
- Fragmented and at times non-existent information database.

### **Opportunities**

- Available natural resources base in land, water and forests
- Genuine interests by the general public to participate in the planning process
- Presence of caves, birds, wild animals, and butterflies which are an asset tourists attractions in the area.

### **Threats**

- High crime rate
- Corrupt practises at all levels of society impede planning decisions
- Political interference in the planning function
- Indiscriminate land allocation and change of user.

## **8.2 Recommendations**

Having highlighted the findings from the data analysis, it is important to recognize the fact that urban forestry has valuable contribution to the city of Nairobi, which range from economic, socio-cultural to environmental. Despite all these, it is still lowly regarded economically.

Therefore, if the above findings can be accepted for Karura and other urban forests, it would probably call for a complete overhaul and complete change of urban land use policy and laws for future urban forestry in other Kenyan Urban centres. Most importantly, there is need to demystify legal jargons and related documents in a style and format that can be readily understood and absorbed by the majority, so that the message can be spread further.

### **8.2.1 Recommendations for legislations**

Although policy and legislation formulated to govern the use of forest resources is fairly comprehensive forest destruction and degradation continues.

As a result of lack of harmony in legislations, their implementation has been problematic. The principle urban and rural Physical Planning Law in Kenya at local and national levels is the Physical Planning Act, Cap 286, which came into operation on 29<sup>th</sup> October 1998. By nature, planning is a multi-displinally process requiring participatory approaches by all stakeholders and harmonization with other related statues and relevant authorities in land development planning and management is necessary. As the analyses in the previous chapters has shown, there is no substantive conflict in any section of the statutes but due to lack of harmonization of the various administrative procedures by the relevant authorities, the Planners, Surveyors, Land Officers and the Local Authorities continue executing their respective statutes independently without coordination and reference to the related Acts.

The Physical Planning Act, Cap 286 and the related statutes require, therefore to be harmonized as follows:

The Physical Planning Act, Cap 286, Section 36 stipulates that if a development application such as proposals for industrial location, dumping sites, sewerage treatment, quarries or any other development activity have injurious impact on the environment, the applicant shall be required to submit together with the application an Environmental Impact Assessment (EIA) report. It is therefore necessary that the Director of Physical Planning liase with the Ministry of Environment and Natural Resources, (MENR), for the preparation and submission of an environmental impact

assessment report for development permission relating to all aspects of development such as settlement in forest areas as the case may be in the study area. In such cases where an EIA report is required no approval for any application should be processed before it is submitted and discussed by the local authority.

There is therefore need to amend and harmonize the relevant laws and the ones, which are responsive to the practice of urban forestry, should be amended to accommodate it. The Physical planning Act should be amended to give urban forestry more prominence.

The Local Government Act Cap 265, that does not give the stakeholders the *locus standi* to sue when aggrieved, should be amended to allow them defend their stake in the forest land.

Section 4 of the Forest Act Cap 385 where the Minister is given the powers to alter the boundaries of the forest should be amended to allow for more consultations before a forest boundary is altered. The 28 days notice of their intention to alter boundaries of a forest should be published in other local dailies in order for the members of the public to know about the intention, other than in the Kenya Gazette, which is not even accessible to most of the people. This will therefore allow stakeholders to raise any objections if any.

Despite the praise the Environmental Management Coordinate Act (EMCA) has received from commentators and stakeholders, the Act is flawed. EMCA's major attributes are the creation of environmental arms and establishment of various institutions. Unfortunately, this law has established too many institutions. This fact has created a mammoth bureaucracy, as well as undue duplicity. Even though many hands can make-work easier, too many cooks are known to spoil the soup.

The creation of the public complaints committee, for instance, is superfluous. Why have it when its functions could have been shared between NEMA and the tribunal. Besides, some of its responsibilities, and those of the Environmental Tribunal overlap.

Most of these institutions will end up being paper tigers. Many months after their creation, they have failed to change Kenya's environmental landscape. Since its inception two years ago, NEMA has not prepared a single annual report on the state of environment as required by the Act.

Also all aspects of compliance, enforcement and implementation have to be addressed lest the Act will be just another paper tigers. In a nutshell there is need to consolidate our land laws in one comprehensive statute to avoid the confusion caused by the various existing statutes. Clear parameters for both alienation and cancellation of irregular title deeds must be legislated. More transparent procedures beyond action should be devised. Alienation of land for example needs to be effected by a panel as opposed to an individual and stringent development conditions must be enacted and enforced to avoid speculation.

In the long run clear Government policy on land tenure and use is crucial. In formulating such a policy regard must aim at balancing individual interest on the one hand and the public interest on the other. The public and entrepreneurs alike must know what constitutes illegality/irregularity in land alienation. But above all justice must be seen to be done and the only bedrock for achieving this is to ensure that the rule of law reigns throughout.

### **8.2.2 Recommendations for office holders**

The Commissioner of Lands, Director of Physical Planning, the Forest Conservator and NEMA's Director General for instance, should have been given security of tenure. Theirs could have been constitutional offices rather than one whose occupant holds offices at the president's pleasure. The Director of Physical Planning should not propose development in environmentally sensitive (forest) areas while the Director of Surveys and Commissioner of Lands should on their part exclude the same areas from any surveys or change of user and they can only do this comfortably if they are holding constitutional offices. Such that they should be able to make decisions without any political interference. The ever-changing institutional framework of our government's paralyzes informed decision-making. The fact that in the year 2000, there were 4 different Chief Conservators of Forests in Kenya

since October 1999, one of them lasting only a few days, this type of scenario does not allow proper planning for the future.

The Minister for Environment should be legally required to hold at least a Bachelor's degree in Environmental Sciences, and to have a security of tenure for a given period. Without such security of tenure, the officers remain toothless bulldog. This is because they have to work according to the whims of the government. They then end up being an instrument in the hands of the government rather than a public defender.

### **8.2.3 Recommendation for land use planning**

If the high urbanization rate is left unmanaged it is likely to conflict with forestry as a land use. The presence of a forest in the city is an eye opener to the planner and urban managers to integrate it into the urban system. As a result the following recommendations are deemed necessary for the integration of urban forestry.

The economic justification offered in the allocation of urban land resources should not be the basis of planning for forestry but rather the social, cultural and environmental benefits and the length the forest has been there should be given due consideration. The City Council should include urban forestry as a managed activity that should be within the department dealing with environment. This can be possible through employment of Foresters and Support Staff as relying on government officers is not enough as they are not directly answerable to the local authority. This will ensure that the environmentally fragile areas are preserved and forest resources used sustainability. No further land allocation should take place; the allocated land that has not been developed should be surrendered back to the government for reforestation to be undertaken.

### **8.2.4 Recommendation for Wood carving industry**

The traditional wood carving industry is decimating a number of native trees species in the study area, such as *Brachylaenahuillensis* (muhugu tree). There should be a campaign to promote the use of sustainable harvested wood for carving. The forest officers should work with carvers to identify several alternative hardwood, such as

Neem, Jacaranda, Grevillea and Mango trees, which mature much faster and relatively abundant.

### **8.2.5 Recommendation of the availability of data and Information on Forests**

Accurate and timely data on the extent of the loss and degradation of forests in Kenya is difficult to obtain.

For example, there is lack of information on matters related to changes in the land tenure and management. For instance, in the Statistical Abstract, 1995 and 1996 (Government of Kenya) figures in the different land tenure categories are exactly the same, although Gazette notices indicate that they have been changes, through alienation of Trust and Government Land over this period.

Furthermore, the use of the Kenya Gazette as the only official tool for communication of the (de) gazettement of forests is inadequate. The Kenya Gazette is published once a week in addition to special issues that are produced in direct response to specific government announcement. The circulation of the gazette is limited to subscribers and members of the public who purchase it directly from the Government Printer's Bookshop in Nairobi. Other citizens living far from the capital have great difficulty in accessing the gazette. Therefore the large percentage of the public (stakeholders) has limited access to gazzetement and de-gazzetement announcements that could directly affect them.

More consideration needs to be given to enhance reliability; consistency and other management decisions should be disseminated through the print and electronic media or displayed in prominent places such as Administration offices and announced at Chief's barazas.

### **8.3 Recommendation for future research**

The study concentrated on the legal and institutional framework of forest management. However, it is recommended that future studies on urban forestry should focus on:

1. The ways of involving the community within the peri-urban areas in planning and management of urban forestry.



2. Ways of transforming urban forestry to a commercial and competitive urban activity
3. The need to develop recreational facilities within the study area that will also be used to exploit the tourist potential.

#### **8.4 Conclusion**

Urban forestry in the city of Nairobi was found to have co-existed with other land uses for a long period before the coming of the colonialists. The 1973 Nairobi metropolitan growth strategy plan recognized the presence of the forest and recommended that it should be conserved to save the neighbouring coffee farms in Kiambu district.

Development control in relation to urban forestry in the municipality is not effective. The council has not taken the management of Karura Forest seriously. The existing legislations lack harmony hence cannot be relied upon to guide the planners and managers of the forest. The role played by Karura forest include for carving wood, greening effect, source of fuel wood, a habitat for wildlife among others. There is therefore need to integrate urban forestry in the urban system due to its potential to maintain the microclimate and curb the rising pollution in the city. The government should;

- Involve local communities in the management of the forest during the planning and implementation process. Towards this end there is need to create awareness within local communities on the need for their active participation in Urban Forestry
- Involve other stakeholders in the management of the forest during the planning and implementation process. "Other stakeholders" here the research has in mind the other land users within the study area. This calls for more participatory approach to land use planning in the area based on the premise that land users will be final decision makers and implementors of the proposal the researcher is making.
- Allow individual / private bodies to imitate independent projects related to forest conservation and avail legal infrastructure and policy framework that is fully supportive of such endeavour.

A policy environment should be put in place whereby local decision makers including farmers and estate developers will benefit directly out of the forest conservation efforts.

Therefore in a nutshell, long-term conservation of Karura Forest needs two things; strict legal protection to prevent further encroachment and degazetment; stronger partnerships between forestry, villagers and the private sector to manage the natural forest remnants of and restoration of degraded forestland.

## SELECTED REFERENCES

Abrams Charles (1969). **Economic Advantage of Parklands to a Community**

Bene, J., Beall G. and Cote, a (1977). **Trees, Food and people**. Land Management in the tropics. Ottawa;

Crafter, S. A., J. Awimbo and A.J. Broekhren (1997). **Non-timber IDRC forest product; value use and management issue in Africa**, including examples from Latin America Nairobi IUCN

Emerton, L. (1996). **Valuing the environment, case studies from Kenya**, Nairobi: African Wildlife

Falconer, J (1990). **The major significance of "Minor" forest products**. Rome: FAO

FAO. (1992). **Forests, Trees and food**. Rome: Food and agriculture organisation (1994). **Guidelines for land use planning**, FAO Rome.

(1996) **Change in forest cover in Kenya, 1990-1995**. Rome, FAO

Goodman, W., (1968). **Principles and Practices of Urban Planning, by city Managers Associations**, Washington.

Herrington, J (1990). **Beyond Green Belts: Managing urban Growth in the 21<sup>st</sup> Century**, London

IUCN (1996) **Forest covers and forest reserves in Kenya policy and practise**. Nairobi, IUCN

Keeble, L (1952) **Principles and practise of town and County planning**: printer and published by estate (Gazette Ltd. 47 Museum Street, London Inc)

KIFCON (1994) **Kenya Indigenous forest conservation programme: phase 1 report**: Nairobi.

Kingoriah, G. K. (1987) **Introduction to Land Economics**. Nairobi. University of Nairobi.

Kariuki, F. W. (1995) **Case study reports on Wetland legislation in Kenya**, Nairobi: KENGO

Lubanga, M. (1991). **"Socio-Economic and Rural development use of the Forest by households living adjacent to Mount Kenya Forest"**. Nairobi; KIFCON

Lovejoy, D (E.d.) (1973). **Land use and landscape Planning**. New York: Barnes and Noble

Lizy W. A And S. Mbaya (2001). **Land, People and forests in Eastern and southern Africa at the beginning of the 21<sup>st</sup> Century**, Nairobi, IUCN

Mather, A.S (1986). **Land use**. Longman Scientific and technical, London

Matiru, V (2000). **Forest cover and forest Reserve in Kenya: Policy and Practise.**, Nairobi, IUCN

Marsh, W. M (1991). **Landscape planning, environment applications**, New York, John Wiley

McLaughlin (1974). **Urban and Regional Planning**. A System approach, Faber & Faber

Meyer, W, B and B.L Turner II (1994). **Change in the Land use and Cover; A global Perspective**; UCAR, New York

Mistrati, A, A, M: (1983). **Land Conversion to urban use**. Its impact and character in Libya, Ekistics 300 May/June

Masibo, M. N (1993). **Environmental Impact Assessment: a case study in the Nairobi area**; in proceedings of the 5th conference in the Geology of Kenya, Nairobi; University of Nairobi

Nkako, F.M (1999) **Project Impacts Downstream and natural Resource use conflict**. Nairobi, FAN.

Okoth-Ogendo, H.W O and Oluoch Kosura, W (1995). **Land Tenure and Agricultural Development in Kenya**, Nairobi: Ministry of Agriculture, Livestock Development & Marketing.

Obudho, R. A (1976). **The nature of Kenya Urban Hierarchy**, Implication for Regional Planning Strategy (Unpublished Thesis)

Obudho, R. A and Taylor D. R.F (1976). **A spatial structure of development**

Obudho. R.A and G.O. Aduwo (1992). **The Nature of the Urbanisation Process and urbanism in the city of Nairobi, Kenya**. African Urban Quality, Nairobi (Pg 50-62)

Racliffe, J (1976). **Land policy**, London; Hutchinson

Ryszkowski, L. A and J Olenik (1991). **Potential effects of climate on Land Use Change on the Water Balance Structure in Poland**. In Brouwer et.al Transformation and Future Patterns, Kluwer Academic Publishers, London

Situma, M (2001). **Environmental problems in Kenya**, Konard-Adenauer Foundation, Nairobi

Tolba, M.K (1992). **Saving our planet, challenges and Hopes**, Chapman & Hall, London

Wass, P (1995). **Kenya Indigenous Forests: Status Management And Conservation**, Nairobi, IUCN.

Yahya, S.S(1987), **Seeking the Standard Bearer**. ITDG.Rugby.

### JOURNALS AND ARTICLES

- Berstein, J.D (1993); **Land Use Considerations in Urban Environment Management, Urban Management Programme Series No 12**, The World Bank, Washington, D.C
- Erickson. D.L (1995); **Rural Land Use and Land Cover Change: Implications for Local Planning In River Basin Watershed**, Land Use Policy Vol 12 (3) 223-236
- Roberts, T.H (1988); **Land use and Planning in Catanese, A. J and J. C Synder (eds) Urban Planning**, McGraw Hill, New York
- Opala. K (1998); **Status of Forest Unclear Pg12-17**
- Radoli, M (1999); **Action needed to save forests**
- Mwai. M (1999); **Our Forests Continues Felling of trees in Aberdare**
- (2004) **Motion to protect forestland passed**
- (2004) **Team out to Asses forest destruction**
- Kenya (1994). **National Development Plan 1997-2001**, Nairobi.
- (1995) **Statistical Abstract Central Bureau of statistics: Nairobi**
- (1999) **Organisation of Government of the Republic of Kenya**. Issued by the Office of the President, Nairobi

- (1976)     **Physical Planning Handbook**, Department of  
Physical Planning, Nairobi
- (1996)     **Physical planning Act Cap 286**, Government Printer,  
Nairobi
- (1984)     **The Government Lands Act Cap280**, Government  
Printer, Nairobi
- (1988)     **The Chief's Authority Act Cap 128 of 1970**,  
Government Printer, Nairobi.
- (2001)     **The Constitution of Kenya**, Government Printer,  
Nairobi
- (1994)     **The Forest Policy**, Government Printer, Nairobi
- (1982)     **The Forest Act Cap 385**, Government Printer, Nairobi
- (1986)     **The Local Government Act Cap 265**, Government  
Printer, Nairobi
- (1989)     **The Registered Land Act Cap 300 of 1985**,  
Government Printer, Nairobi
- (1999)     **The Water Policy**, Government Printer, Nairobi
- (1999)     **The Environmental Management & co-ordination  
Act**, Government Printer, Nairobi

# APPENDICES

## Appendix 1

UNIVERSITY OF NAIROBI  
DEPARTMENT OF URBAN AND REGIONAL PLANNING

TITLE: PLANNING AND CONSERVATION STRATEGY  
OF KARURA FOREST, THE CITY OF NAIROBI, KENYA  
HOUSEHOLD QUESTIONNAIRE

**Confidential:** The information provided under the survey shall be used for this study (Research) only and not for any other purpose.

1.0 Plot NO. .... Name .....

1.2 Division/Location ..... Date  
.....

### HOUSEHOLD DETAILS

2.0 NUMBER OF PEOPLE IN THE HOUSEHOLD .....

Please fill in the details

Sex	Age	Education	Relation to the household head

2.1 How long have you lived here? .....

2.2 Where were you living? .....

### HOUSING STRUCTURE

3.0 Who owns this house?

1. Self ( )    2. Employer ( )    3. Rented ( )







## Appendix 2

### UNIVERSITY OF NAIROBI

#### DEPARTMENT OF URBAN AND REGIONAL PLANNING

#### KARURA FOREST STUDY

#### TITLE: INTERVIEW SCHEDULE FOR LANDS DEPARTMENT PLANNING AND CONSERVATION STRATEGY OF KARURA FOREST, THE CITY OF NAIROBI, KENYA

**Confidential:** The information provided under the survey shall be used for this study (Research) only and not for any other purpose.

1. What is the procedure of alienating forestland
2. Who has the authority to alienate urban forest land
3. (i) What is the exact acreage of land that has been alienated in Karura forest?  
(ii) Was the normal procedure followed in allocation of this land?
  1. Yes ( )
  2. No. ( )
4. Which role does your department play in Administering of urban forests?
5. How do you intend to deal with developments that have already taken place and those that are yet to take place in Karura?
6. What has your department done or intends to do to avoid the effects unprocedural allocation of forestland?
7. Is the community consulted before any alienation takes place? (i) Yes ( ) 2 No.
  - (i) If yes, how? .....
  - (ii) If No., Why .....
8. What are some of the problems you face as a department in administration of this land?
- (9)(i) What are the main land tenure systems in Karura?
  1. Freehold ( )
  2. Leasehold ( )
  3. Other (Specify) ( )
  - (iii) What is the minimum plot size here?
10. In your opinion, how effective is GLA, RLA, LCB, constitution, Trust Land Act among other in management of urban forest?
11. What are your recommendations in the planning and administration of urban forests?

**THANK YOU**

### APPENDIX 3

#### UNIVERSITY OF NAIROBI

#### DEPARTMENT OF URBAN AND REGIONAL PLANNING KARURA FOREST STUDY

#### TITLE: PLANNING AND MANAGEMENT OF URBAN FORESTS INTERVIEW SCHEDULE FOR PHYSICAL PLANNER

**Confidential:** The information provided under the survey shall be used for this study (Research) only and not for any other purpose. Your co-operation in this regard will be highly appreciated.

**Name**.....

**Designation**.....

**Date**.....

1. Who has the authority to plan for this area?
2. What procedure do you follow in controlling development area?
3. How effective have the Local Authority by-laws been in controlling and/or regulating developments in this area?
4. How do you intend to deal with developments that have already taken place and those yet to take place without in this area?
5. What has the council and Government done or intends to do to avoid the effects of high-unplanned invasion of forestland?
6. What has been the councils /governments role in land use developments in forestland?
7. Among the various tools you use in zoning regulations, how do you arrive at a zoning particular area for a particular use (with special focus to Karura area)
8. How often do clients confront you over preparation for subdivision plans especially for urban areas? Are these opportunities commensurate to the developments and professional advice you render Yes ( ) No ( )
9. What are some of the problems that you face in enforcing the Development Control regulations
10. Is there any variation in the use, control and management of land in the area? Yes ( ) No ( )
11. What is the main land tenure system in Karura?

Freehold ( ) Leasehold ( )

12. What is the minimum plot size in Karura?
13. Do you have advisory physical development plans for this area?
  - (a) Do you have any advisory physical development plan for the area?
  - (b) Which year was it prepared?
14. What has been the role of the NGOs in land utilization and management?
15. Do you believe in community /public participation in planning?
16. If yes, how and at what level of planning can communities be made to participate?
17. What do you think are the major limitations of land use regulations and control with the physical Planning Act regarding urban forests?
  - a. In your opinion how will the Physical Planning Act help in controlling development in this area
  - b. Who else apart from the Physical Planning department provides Physical Planning services within the area?
18. In your opinion, how will the Physical Planning Act help in controlling development in this area?
19. Are there provisions for urban forestry in and around the city?  
Yes ( ) No ( )
20. As a professional what are your recommendations in planning and management of urban forests bearing in mind that it has been accepted elsewhere with success?

**THANK YOU**

**APPENDIX 4**  
**UNIVERSITY OF NAIROBI**  
**DEPARTMENT OF URBAN AND REGIONAL PLANNING**  
**TITLE: PLANNING AND CONSERVATION STRATEGY OF KARURA**  
**FOREST, THE CITY OF NAIROBI, KENYA**  
**FOREST DEPARTMENT QUESTIONNAIRE**

**Confidential;** The information provided under the survey shall be used for this study (Research) only and not for any other institution .....

**Date**.....

**Name of Institution**.....

**Designation**.....

- 1      a. Who owns the forest land?  
       b. What are some of the management interventions put in place by your department for Karura Forest?
- 2      How does the local Mwananchi benefit from the forest?
3.      Why was Karura established?
  - i.      Recreation purposes
  - ii.     Cultural purposes
  - iii.    Tourism purposes
  - iv.     Any other
4.      Which management approaches have been adopted in Karura forest?
  - i.      Top-down
  - ii.     Participatory approach
  - iii.    Other
5.      Do you have a planning and management strategy for Karura?
  - a.      Which institutions are responsible planning and management of Karura Forest?
  - b.      Is the forest department supported by requisite institutional framework to support sustainable forest sector development in the country?
  - c.      If No what is your suggestion regarding institutional frame how much land is currently under forest?

6. a. In your opinion is there harmony in the existing legislation in planning and management of urban forest  
b. If No, what should be done to realise better planning and management of urban forest?
  7. a. How are funds collected from Karura Forest in assist in planning and management of the forest?  
b. Is your independent allocated enough funds for management of forests?  
Yes/No
  8. What are the limitations in the use of the resources e.g. medicinal plant, fuel wood, honey etc
  9. What social services are provided to the neighbouring community by the forest?
  10. Is there forest policy for urban forests/
  11. How does the decision to alienate forestland reached?
- Any comment/ Recommendations