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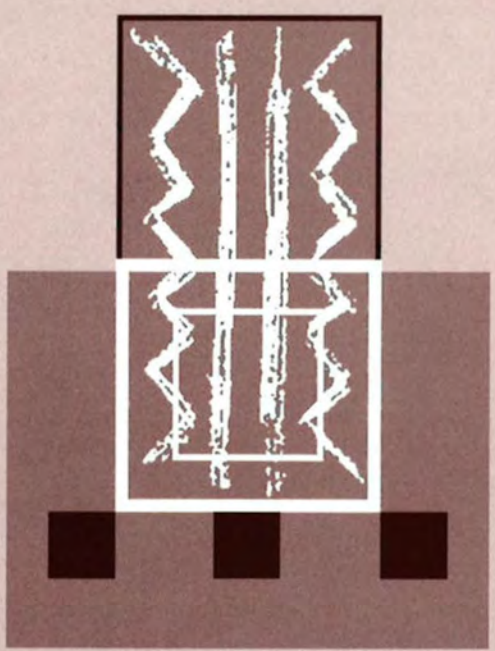
Community-based conservation in an entitlement perspective



Wildlife and forest biodiversity conservation in Taita, Kenya

James Gichiah Njogu

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This PhD project was part of the research programme *Resources, Environment and Development Research Associates* (REDRA) of the Amsterdam Research Institute for Global Issues and Development Studies (AGIDS). It also formed part of Working Programme 1, *Natural resource management: Knowledge transfer, social insecurity and cultural coping,* of the Research School for Resource Studies for Development (CERES). The Netherlands Foundation for the Advancement of Tropical Research (WOTRO) jointly with the Amsterdam Research Institute for Global Issues and Development Studies (AGIDS) of the University of Amsterdam funded this research. The School of Environmental Studies of Moi University (Eldoret, Kenya) provided institutional support.

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List of abbreviations

ACC	African Conservation Centre
AWF	African Wildlife Foundation
CAMPIRE	Communal Areas Management Programme for Indigenous Resources
CBC	Community Based Conservation
CBD	Convention on Biological Diversity
CBO	Community Based Organisation
CCP	Community Conservation Program
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COBRA	Conservation of Biodiversity Resource Areas
CORE	Conservation of Resources through Enterprise
CWP	Community Wildlife Programme
CWS	Community Wildlife Service
DANIDA	Danish Agency for Development Assistance

DDC	District Development Committee
DFCC	District Forests Conservation Committee
DRSRS	Department of Resource Survey and Remote Sensing
DWCC	District Wildlife Compensation Committee
EAWLS	East African Wild Life Society
EMCA	Environmental and Management Coordination Act
ICDP	Integrated Conservation and Development Project
IDA	International Development Association
IIED	International Institute for Environment and Development
IMCE	Inter-Ministerial Committee on Environment
IMF	International Monetary Fund
IUCN	International Union for Conservation of Nature and Natural Resources
KARI	Kenya Agricultural Research Institute
KEFRI	Kenya Forestry Research Institute
KFS	Kenya Forest Service (Proposed)
KLDP	Kenya Livestock Development Programme
KNA	Kenya National Archive
KWS	Kenya Wildlife Service
LUMO	Lualenyi, Mramba and Oza ranches
NBU	National Biodiversity Unit of Kenya now referred to as Centre for Biodiversity
NEMA	National Environment Management Authority
NGO	Non-governmental Organisation
NMK	National Museums of Kenya
PAC	Problem Animal Control
PAWS	Protected Area Wildlife Service Programme
RoK	Republic of Kenya
THWS	Taita Hill Wildlife Sanctuary
TNP	Tsavo National Parks
TRWS	Taita-Rukinga Wildlife Sanctuary
TTCC	Taita Taveta County Council (TTCC)
TTLOF	Taita Taveta Land Owners Forum
TTWA	Taita Taveta Wildlife Association
UNDP	United Nations Development Program
UNEP	United Nation Environment Programme
USAID	United States Agency for International Development
WCMC	Wildlife Conservation and Management Department
WDF-RS	Wildlife for Development Fund-Revenue Sharing
WRI	World Resources Institute
WUMBUBAKA	Wushumbu, Bura, Mbale and Kasigau ranches
WWF	World Wide Fund for Nature

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Part one

The context

Part One, covering Chapters 1-4, introduces the entire thesis and clarifies the background to the study, the geographical context, theoretical orientation and methodologies used. In Chapter 1, we will introduce the study, beginning with the background of the research problem by highlighting the limitations of protectionist approaches for biodiversity conservation. It will also highlight the current conservation approaches and then narrow down to focusing on the community-based conservation approach. We shall then proceed to the statement of the research problem, research questions, goal and objectives of the thesis, as well as delineating the scope of the thesis, the general research methodology and the plan of the thesis. Chapter 2 reviews wildlife and forest biodiversity conservation against the broader concept of biodiversity conservation at the global level and highlights the problems of biodiversity loss. Chapter 3 deals with the theoretical issues in modern conservation, focusing on community-based conservation. It sets forth the theoretical approach adopted in data collection, analysis and the writing of this thesis. Chapter 4 focuses on the methodology of data collection and analysis.

1

Introduction

Background to the problem

This thesis deals with problems of wildlife and forest biodiversity conservation and looks at three positions in the current debate on community-based conservation. First, there is the argument of the ecosystem management approach,[1] which propounds that bounded spaces for nature cannot be preserved in isolation from the surrounding landscape (Neumann 1998), nor can the assemblage of species constituting an ecosystem be safeguarded indefinitely in the same place, in view of ecological and socio-economic dynamics (Berkes 1999; Berkes and Folke 2002; Clapp and Crook 2002). This argument evokes the concept of legal pluralism where, in practice, there is coexistence and interaction between multiple legal orders such as the state, customary, religious, project and local laws, all of which provide a basis for claiming entitlement rights. The second position is the propagation of the paradigm of 'protectionism' in current conservation ideology. This not only contravenes the ecosystem management approach to current conservation, but leads to the eviction and exclusion of local and indigenous communities, criminalisation of traditional land uses and the emptying of cultural landscapes to realise some unattainable ideal of wildlife and forest conservation (Cronon 1995). Thirdly, there is the scepticism among the stakeholders in wildlife and forest biodiversity conservation. In particular, the conservation activities of various environmental non-governmental organisations (ENGOs), notably the international actors, are viewed as infringements of local rights, including the mandates and rights of government agencies with legal jurisdiction over the management of protected conservation areas. In the same realm, local communities view the activities of the same government agencies and those of ENGOs

[1] Although many of the key concepts of ecosystem management have remained the same, the debate to define ecosystem management continues today. It is defined as a management form driven by explicit goals, executed by policies, protocols and practices, and made adaptable by monitoring and research based on the best possible understanding of the ecological interactions and processes necessary to sustain ecosystem composition, structure and function (Christensen *et al.* 1996).

as infringements of their entitlement rights. The internal socio-economic heterogeneity of local communities also contributes to the distrust of each other in community-based wildlife and forest conservation initiatives.

The overall thesis is conceptualised in the context of current conservation approaches and, particularly, the community-based conservation initiatives. From a global perspective, the disposition of the conservation approach has specific challenges inherent in its perceived incompatibility with economic development (Kiss 1990; Sinclair *et al.* 2000). In terms of its evolution, the approach is described as having undergone three phases: preservation, protection and conservation (Dearden 1991; Omondi 1994). Currently, conservation is a much broader and more dynamic concept than originally defined (Adams 1990; Sinclair *et al.* 2000). It is embraced in the concept of 'intelligent resource use' aimed at meeting equitably society's short and long-term needs (Dearden 1991; Stevens 1997). It has become an issue in many social and natural sciences and an interdisciplinary approach is a necessity (Omondi 1994).

Preservation, protection and conservation

The history of national parks and protected areas began in the United States with the establishment of Yellowstone National Park in 1872. (Nash 1982: 113). The intended goal was to prevent private acquisition and exploitation of the park's unique landscape. Later, the intention was to preserve the land from human impact (Keller and Turek 1998: 17). Although native peoples had been a part of natural ecosystems for hundreds of years, the view was that, by isolating humans from the environment, natural wilderness could be preserved and maintained in its inherently wild, untouched state. The major innovative component of national parks was the isolation of wilderness areas from human impact and development. This idea of preservation could not be achieved without some form of rules and surveillance to exclude the natives. This evolved to the idea of protection and the use of rule-oriented laws.

However, the two terms preservation and protection are used interchangeably in most cases, hence they do not imply two different phases. Conceptually, two paradigms are often recognised in the history of conservation. These are 'protectionism' and 'conservationism'. Protectionism is the total exclusion of human beings and their activities from the national park, while conservation implies some form of human use. Conservation is the management of human use of the biosphere to yield the greatest benefit to present generations, while maintaining the potential to meet the needs and aspirations of future generations. Conservation thus includes sustainable use, protection, maintenance, rehabilitation, restoration and enhancement of the natural environment (Stevens 1997). It is worth noting that the paradigm of conservation is complex, as it also embraces protectionism. This is because different rules are applied to different conservation areas under different designations, such as national parks, game reserves, national reserves, sanctuaries and wilderness reserves etc. For instance, in the Kenyan context of conservation, no human activities are allowed in the national park, but grazing may be allowed in reserves. Ironically, tourism activities, which are indeed human activities, are allowed in national parks, an issue that does not endear national parks to the local communities.

The idea of strict preservation and pure protection has had considerable influence on preservation practices and is still recognised as a preservation model. Many of the late nine-

teenth and early twentieth century national parks established worldwide were 'directly inspired' by the US National Parks system, specifically Yellowstone (Pearson and Ryan 2002).[2] The management of many of these parks included restrictions against people hunting, herding, farming, gathering, felling trees and even collecting medicinal plants (Stevens 1997). The implementation of the national parks system and the corresponding regulations and restrictions was successful in the United States because it was supported by the dominating social consensus of individuals. However, the idea of outlawing hunting and resource gathering is not universally shared or accepted. In fact, the early global conservation movement reflects the conflicting social attitudes and inequalities of resource allocation, which have compounded conservation throughout its history (Western and Pearl 1989: 6).

Conservation conflicts

Wildlife and forest conservation approaches based on 'protectionism' have denied local communities their entitlement rights to what they considered theirs. The worldwide establishment and expansion of protected wildlife and forest conservation areas has the unintended consequence of displacing people and cutting them off from their principle source of social and economic livelihood. These people are often involuntarily displaced. They are tagged 'conservation refugees' (Geisler *et al.* 1996). In most cases, the consequences of the displacements and exclusion are not considered. These range from environmental to socio-economic problems, which are manifested in various forms of conflict (Omondi 1994). This is also implied in the argument of Homer-Dixon[3] (1999). The state control of and the total exclusion of local communities[4] and indigenous people[5] from protected wildlife and forest areas not only disrupted the socio-economic systems, but also the age-old and time-tested practices that are known to be beneficial to 'natural ecosystems' (Dietz 1991; Adam and McShane 1992). Some chronicle the loss of customary rights of access and the criminalisation of traditional land uses that have resulted from the creation of some parks, particularly in Africa (Neumann 1998).

The stringent protectionist approach is now considered futile. Coupled with a deepening biodiversity crisis in the last two decades, it stimulated a search for alternative conservation

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2 Pearson, W. and A. D. Ryan (2002), Can the US National Park model be applied successfully to a unique and culturally distinct society? A case study of the Maasai and Amboseli National Park. (http://www-personal.umich.edu/~rdandrew/maasai.html 2 July 2002)

3 Thomas Homer-Dixon, a Canadian political scientist, is the foremost academic proponent of the view that negative environmental change leads to conflict, mainly in the developing world. Homer-Dixon (1999) explains that resource scarcity, made worse by environmental degradation, the inequitable distribution of resources and population growth, leads to poverty, inter-group tensions, institutional collapse and human displacement. These, in turn, lead to instability and conflict, Homer-Dixon claims.

4 The concept of local community refers to a group of people, individuals or households who inhabit a particular area and whose actions affect the status of biodiversity and biological resources in that locality. The individuals and/or groups concerned may not be homogenous or undifferentiated, but they include multiple actors and institutions (stakeholders), often with different roles and responsibilities. The group of people may or may not share the same socio-cultural background and/or economic status and may have different interests in biodiversity conservation and management (Sanchez and Juma 1994, glossary).

5 The concept of indigenous people refers to communities that share the same socio-cultural background and are considered as the original inhabitants of a given area (Sanchez and Juma 1994, glossary). This study will use local community to include all the people, including the indigenous people, living in and around the protected and conservation areas.

approaches. Consequently, management approaches based on local participation have sprung up, particularly in the developing countries (UNEP 1988; Western and Wright 1994). These approaches have an interest in local-level solutions to resource problems and in changing local institutional arrangements. They do so by conferring specific rights as incentives in order to stimulate local participation in the conservation efforts.

In the protected areas and their surroundings, these initiatives attempt to link conservation with social and economic development. These initiatives are known by a variety of labels, including community-based natural resource management (CBNRM), integrated conservation and development projects (ICDPs) and community conservation (CC). They vary considerably in scale and scope. The smaller projects include biosphere reserves, multiple-use areas and a variety of initiatives on the boundaries and surroundings of conservation areas, including buffer zones. Larger scale projects include the implementation of regional land-use plans with conservation area components, as well as large-scale development projects with links to nearby conservation areas. Some, such as the proposed transfrontier conservation areas (TFCAs)[6] in southern Africa presently supported by the Peace Parks Foundation, straddle international boundaries, linking several national parks. Generally, these approaches have been developed more or less independently, based on the common premise that the management of conservation areas needs to reach beyond traditional conservation activities inside protected areas in order to address the needs of local communities outside in the perspective of the ecosystem management approach. In Africa, these approaches are commonly referred to as community-based conservation. Some of these initiatives that have been institutionalised include the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) in Zimbabwe; Administrative Management Design for Game Management Areas (ADMADE) in Zambia; Community Conservation Service (CCS) in Tanzania; and Community Wildlife Service (CWS) in Kenya.

The community-based conservation approach has spread very fast recently. It relies on the active participation of the local people in conservation interventions and entails not only giving local communities (and indigenous people) user rights, but also obligations, responsibilities and managerial know-how (Barrow *et al.* 2001). However, this conservation approach[7] is relatively new, unproven and more of a hope than reality (Bell 1991; Western and Wright 1993 and 1994; Barrow *et al.* 2000). These and many other uncertainties about the efficacy of community-based conservation in Kenya and the world over demonstrate the frustrations experienced generally in biodiversity conservation and, particularly, in wildlife and forest conservation. First, the loss of biodiversity generally continues unabated, even in conservation areas and, secondly, local communities continue to feel alienated from their traditional resources. At the same time, governments have often misinterpreted calls for greater community involvement in biological resource management as demands to turn the whole enterprise over to the local people (Rheid and Miller 1989). Furthermore, as Omondi (1994) notes, it is often easier to suggest proper

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[6] TFCAs are defined as relatively large protected areas, which straddle international frontiers between two or more countries and cover large-scale natural systems encompassing one or more protected areas. (http://www.peaceparks.org)

[7] The current conservation approach departs from protectionism and is founded on the concept of sustainable development. Sustainable development is defined as development that meets the needs of the current generation without compromising the ability of future generations to meet their needs (WCED 1987: 43).

courses of action than to implement them, and this appears quite common with conservation-based proposals.

The local communities in various parts of the world have moved a step ahead by claiming exclusive rights, or at least claiming access, to natural resources found in what they consider their land, to the crop and wildlife diversity found on this land and to the knowledge that informs the uses of these resources. These desires of the local communities to reclaim their rights find official expression in the Convention on Biological Diversity (CBD)[8], which has created an impetus for community-based conservation. However, while these current conservation approaches endeavour to address pertinent issues related to the socio-economic imperatives of the local communities, protectionism continues to play a pivotal role in conservation policies in terms of control and regulation (KWS 1990). The conservation authorities such as the Kenya Wildlife Service (KWS)[9] in Kenya, the international and local NGOs and scholars in the field of biodiversity, wildlife and forest management endeavour to design and redesign appropriate strategies for conservation and management.

Nevertheless, community-based conservation is a concept that must be evaluated in response to changing circumstances and ecological and social-economic dynamics. It entails conservation and development in which local communities are the central actors. As noted by the World Wide Fund for Nature (WWF) in its experience of monitoring and evaluating over forty ICDPs, the success of community-based conservation usually entails the negotiation of a complex set of agreements between multiple stakeholders (WWF 1997). Therefore, the right to own resources, the right to use resources and the right to intervene in resource situations have become the fulcrum of the matter on the ground and therefore form the main theme of this study. These rights are encompassed in the concept of 'entitlements' (Dietz 1996), which also embraces the theory of stakeholders in natural resource governance.

The research problem

The local communities generally appreciated the conservation of both wildlife and forest biodiversity. However,

> *Loss of wildlife and forest biodiversity in protected areas and their surroundings continues unabated as a result of human activities and people's apathetic attitude towards conservation activities that deny them entitlement rights to what they consider theirs, while suffering human-wildlife related conflicts.*

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[8] The Convention on Biological Diversity (1992), Article 8(j) calls for the signatories to... '*respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyle relevant for conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilization of such knowledge, innovations and practices'.* There are also other conventions dealing with indigenous people that Kenya has ratified. These include the International Covenant on Economics, Social and Cultural Rights (entered into force on 3 Jan. 1976) and the International Covenant on Civil and Political Rights (entered into force on 23 March 1976).

[9] The Kenya Wildlife Service (KWS) is a parastatal body or agency charged with the conservation and management of wildlife in Kenya. It was formed in 1989 to replace the Wildlife Conservation and Management Department (WCMD).

They view their relationship with wildlife and forest conservation more in the context of 'protectionism' than 'conservationism'.

The scale and complexity of environmental problems and the loss of wildlife and forest biodiversity is far greater than ever before and calls on skills, policies, legislation, institutional and decision-making processes that involve all the stakeholders. As Rodgers and Saunier (1994: 35) point out:

> The big picture is one of more needs requiring satisfaction, multiplying demands on resources, and more complexity than ever. As a result, no project, regardless of mandate, financing or need can long endure if consensus is not ensured.

Conflicts between protected area management and local economic developments have intensified in many parts of the world. This demands conservation approaches that also protect the rights of the people who live in and around these protected areas. It is therefore imperative that the protected areas contribute to meeting the needs of the local communities. The initial step would be to meet local communities' entitlement rights to resources. This requires working out a model for stakeholder analysis in order to understand their interaction in wildlife and forest resource dynamics based on entitlement rights.

The research questions

While considering the complexity in achieving the goal of wildlife and forest biodiversity conservation and sustainable development, the study pursued the following basic questions:

1. What are the entitlement structures for wildlife and forest biodiversity conservation in Taita, Kenya?
2. Who are the stakeholders? Among the stakeholders the following questions are pertinent:
   (a) What types of rights over wildlife and forest biodiversity resources exist; who owns, who uses and who intervenes in resource situations? Who manages, who invests, who bears the cost and who benefits from wildlife and forest biodiversity conservation? It may be asked further, who holds what right(s) over wildlife and forest biodiversity resource management and what are the implications for other stakeholders? Who plays what role(s) in local wildlife and forest biodiversity conservation and what rights, obligations, responsibilities and managerial know-how do these actors possess?
   (b) Who influences decisions in resource situations and from what level of scale do these actors operate?
3. How are the local communities and other stakeholders involved or linked to wildlife and forest biodiversity conservation in Taita?
4. How do the local communities perceive wildlife and forest biodiversity conservation?

Study goal and objectives

The overall goal of this study is to contribute to a favourable environment for people-oriented wildlife and forest biodiversity conservation, based on entitlement rights as basic incentives.

This will enhance understanding and cooperation between the stakeholders and minimise conflicts between local communities and conservation-propagating agencies.

To achieve this, the following specific objectives have been pursued:

1. To assess the entitlement structures for wildlife and forest biodiversity conservation in the Taita region.
2. To analyse the socio-economic factors that impinge on wildlife and forest biodiversity conservation.
3. To assess the nature and extent to which the local communities are involved in conservation of wildlife and forest biodiversity in Taita.
4. To develop a model for stakeholder identification for blending utility and conservation based on entitlement rights as a basic incentive measure.

In general, the study seeks to contribute to the debate on 'popular participation' as a strategy for enhancing community-based conservation.

General methodology and scope of the study

General methodology

The methodological approach adopted in this study recognises the complexity in analysing and understanding environmental problems. Methods of data collection and data analysis for environmental problems, in general, and for wildlife and forest conservation problems in Africa, in particular, have been criticised for being inadequate for the analysis of complex policy issues (Omondi 1994). Furthermore, problems are commonly analysed within a narrow disciplinary framework, which predetermines the nature of conclusions and leads to professionally-biased proposals (Abel and Blaikie 1986). Various methods together provide different sets of information, which are mutually enriching. This study therefore employs an interdisciplinary approach with selected techniques that are complementary in that they provide crosschecks and new information. This approach is regarded as a 'multi-data approach' (Crano 1981; Anderson 1990; Fowler 1990 and 1993; Fowler and Fowler 2002), 'multiple-subject survey' (Casley and Lury 1987) and 'triangulation approach' (Campbell 1963).

Scope of the study

This study is of natural resource governance with the aim of seeking solutions to natural resource conflicts. It focuses on biodiversity, in general, and on wildlife and forest biodiversity, in particular. In this study, biodiversity is defined as 'the variability among living organisms from all sources, including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part, it includes diversity within species, between species and of ecosystem' (UNEP 1992, Article 2: Use of Terms for the Purposes of the Convention on Biological Diversity). The term wildlife in wildlife conservation in Kenya is generally used to refer to wild animals without consideration of their habitats apart from the land designated for wildlife conservation. This is mainly because 'wild animals' are by law 'state property',

irrespective of where they occur.[10] However the inclination of wildlife policies the world over, and particularly in Kenya, now emphasises an 'ecosystem approach' and/or 'biodiversity approach', which includes the habitats outside the protected areas. Because of this and other factors, the issue of private landownership over areas where wildlife occurs seasonally or throughout the year has become critical. The case of forest biodiversity is simpler, because trees and other vegetation in a forest do not move and therefore issues related to ownership are less complex. In most cases, however, the forest also harbours wild animals. This study focuses on forest conservation under local and central government.

Conceptually, the scope is limited to 'entitlement rights' in wildlife and forest biodiversity conservation as highlighted in Dietz (1996) and based on Amartya Sen's (1981) arguments in his famous essay on poverty and famines. Granting appropriate entitlement rights is viewed as the core incentive to conservation of wildlife and the forests. With regard to the theoretical and conceptual chapter, the theoretical arguments of Regier *et al.* (1989), and Grima and Berkes (1989) on 'Reforming the use of natural resources' strengthen the concept of entitlement by illustrating the kinds of resources governance in the context of full ownership-by-access (ownership and use rights) domains. The kind of governance favoured tends to resonate on the axis of community self regulation – organised bargain-administrative regulation. The kind of governance seeks to know who is who, what role each actor plays and what rights they claim among other pertinent issues in wildlife and forest biodiversity conservation. Therefore, intricate and logical community self-regulation, organised bargain and administrative regulation are all hinged on the 'stakeholder theory' which is all about who is who, roles and rights in resource management. This theory is derived from the arguments of the students of business administration and corporate management on 'stakeholdership'.

Study area

The case of Tsavo area within the Taita Taveta district presents a unique setting for wildlife and forest biodiversity conservation. First, the Tsavo national park is the largest in Kenya, accounting for about 40% of the total protected area of the country and covering about 62% of the Taita Taveta district. The area left for human occupation is only 38%, of which 24% is lowland (mainly ranches and large-scale sisal estates), 11% agricultural land and 3% water and rocky surfaces. Most of it, particularly the Taita[11] area, is like a bay which is almost completely surrounded by the park (Map 1.1). While the park is situated on the lowland areas of low, marginal to medium agricultural potential, the human habitation areas are mainly on the hills of high agricultural potential, where the forest conservation areas are situated. However, the forest covers only 0.4% of the total district land. Because of land shortage on the highland and the flanks, people have been moving to the lowlands, which were tradition-

[10] Including private land where the habitat is regarded as part of the land and therefore owned by the owner of the specific parcel of land.

[11] The Taita Taveta district is named after two major groups of people occupying the district. These are the Taita and the Taveta. As will be discussed in Chapter 5 ('The Taita people and their traditional entitlement structures'), the Taita occupy the three massifs: Dabida, Sagalla and Kasigau. The Taveta people occupy a strip of land west of Tsavo West. The specific study area is Taita.

ally used mainly for grazing and hunting. The results have been an increase in land-use conflict, particularly with wildlife. At the same time, it has been realised that conservation of wildlife and forest biodiversity within protected areas is in peril if the local communities in the neighbourhood are not involved. In any case, wild animals are not confined to the park. From a global environmental perspective, the whole scenario of conservation has also changed. This requires well-thought out, innovative incentive measures that will lead to a balance between development and conservation of wildlife and the forest.

Academically, various concepts have been developed for community-based conservation. A lot of work has been done on entitlement rights encompassing the right to own and the right to use (access) with limited appraisal of rights to 'interventionism' as argued by Dietz (1996). Therefore, in addition to the rights to own and use (access), this study endeavours to develop arguments on intervention rights, which are also closely linked to the theory of stakeholders in the context of community-based conservation.

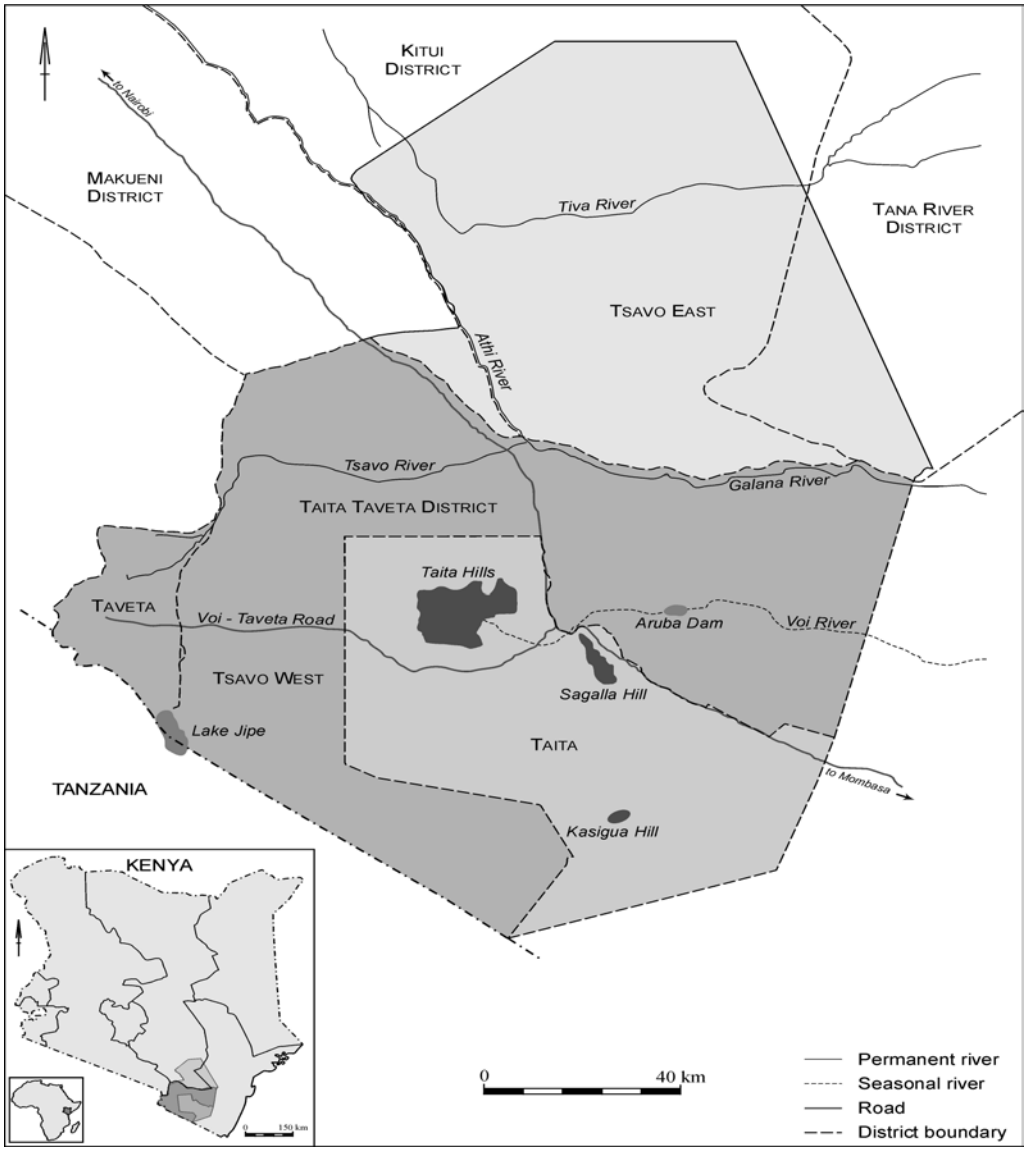
Plan of the thesis

This thesis is organised into four parts. Part One, the context of this study, consists of four chapters including the introductory chapter. Wildlife and forest biodiversity conservation against the broader concept of biodiversity conservation at the global level is reviewed in Chapter 2. Chapter 3 discusses the theoretical issues in modern conservation, focusing on community-based conservation. Chapter 4 discusses the methodology of data collection and analysis.

Part Two of the thesis focuses on wildlife and forest biodiversity conservation entitlement structures. It comprises Chapters 5, 6 and 7. Chapter 5 deals with the historical backgrounds of the Taita people and presents a demographic analysis. It also presents the main environmental and socio-economic problems in Taita area. Chapter 6 discusses land use and tenure as basic resources through which other biological resources are owned, used, managed and contested. The chapter starts by briefly discussing what land, land use and tenure entail, with reference to the Kenyan scenario. It then narrows down to an analysis of land use and ownership in the Taita Taveta district with the aim of identifying 'who owns which land and what use is made of it'. Chapter 7 provides an overview of the typology of wildlife and forest conservation, in the context of entitlements. It describes the institutions involved in biodiversity conservation. The typology of wildlife and forest biodiversity conservation is also discussed in the context of institutional, legal and policy issues. The chapter further presents a historical overview of both wildlife and forest biodiversity conservation from pre-colonial times to the current era. The third part of the thesis is about stakeholders and wildlife and forest biodiversity conservation-related conflicts. It comprises Chapters 8, 9 and 10. Part Three is an assessment of the nature and extent to which the stakeholders are involved in conservation of wildlife and forest biodiversity. Emphasis is placed on the local communities as stakeholders. We will show how the local communities are linked to wildlife and forest conservation and what impact they have on wildlife and *vice versa*. This is contained in Chapter 8. In Chapter 9, management-related conflicts are discussed. It highlights various management initiatives aimed at promoting community-based conservation. In particular, the limitations of these

initiatives are highlighted. Chapter 10 is concerned with stakeholder analysis and devotes space to discuss stakeholders. Specifically, it endeavours to answer the question of who are the stakeholders in local wildlife and forest biodiversity conservation. Part Four, which comprises Chapter 11 only, contains the synthesis and conclusions. On the basis of the research questions and the objectives of the research, it presents a synthesis of all the analyses and conclusions. It also makes recommendations for the improvement of community-based wildlife and forest conservation.

Map 1.1
Taita Taveta District



2

Wildlife and forest biodiversity

Since both wildlife and forest[1] resources are major constituents of biodiversity, this chapter starts by highlighting such key issues as the meaning, components, values and loss of biodiversity, and the conservation efforts at the global level. The chapter then broadly describes Kenya's biodiversity situation. This includes a brief description of Kenya's landscape, followed by description of Kenya's biodiversity, highlighting the taxonomic distribution of animal and plant biodiversity. The ecological setting of the Taita area is described in detail in terms of location, climate, hydrology and physiographic factors. The biological components – animal and plant diversity – are also described.

The concept of biodiversity

Biodiversity components and values

The Convention on Biological Diversity, Article 2, describes biodiversity as 'the variability among living organisms from all sources, including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part. This includes diversity within species, between species and of ecosystems' (UNEP 1992). In this context, there are three general categories of biodiversity: ecosystem/habitat diversity, genetic diversity and species diversity. The survival of each is linked to the health of the other two and, together, they comprise the wealth of ecosystems. There are about one and a half million named species on earth and many more unnamed (Harte 1996, NBU 1992).[2] These species, including human beings, interact in various ways with the environment to provide the living systems upon which each of them depends. These interactions form complex and intricate webs known as

[1] Wildlife is often broadly defined as including wild animals of all kinds and their natural habitat, while forest essentially refers to an assemblage of tree vegetation occurring naturally or man-made in the form of plantations.

[2] National Biodiversity Unit of Kenya (1992). Provisional data indicate that the total number of animal species could range between 5 and 80 million. However, this range is critically dependent upon extrapolations of insect (especially beetle) species diversity from limited samples in tropical rainforests. Otherwise, the estimate of the total number of species is 15 million.

ecosystems, where there is a clear flow of energy and circulation of nutrients (Van Dyne 1969). Ecosystems are diverse and interact with each other through exchange of matter. No single ecosystem is independent of its neighbouring ecosystems. *Ecosystems diversity* exists because ecosystems are different mainly through differences in their physical components, which support different species of organisms. In a broader context, there are aquatic ecosystems and terrestrial ecosystems. In these broad ecosystems, there are many sub-ecosystems such as forest and grassland ecosystems (terrestrial), marine and fresh water ecosystems (aquatic). The delineation of an ecosystem is not clear (Grimm 1998; Jax *et al.* 1998)[3] and may be regarded as a continuum, constituting the biosphere – the range within which living organisms exist on earth.

Ecosystems may further be divided into habitats and niches, where specific organisms dwell. In essence, *habitat diversity* refers to the variety of places where life exists, such as coral reefs, tall grass prairies or short grass savannah and coastal wetlands. Each broad type of habitat is the home for numerous species, most of which are utterly dependent on that habitat. Therefore, when a type of habitat disappears, a vast number of species disappear as well. More often, an entire habitat does not completely disappear, but instead is nibbled away, acre by acre, until only small patches remain.

There is variation among organisms between and within populations[4] of a given species. No single individual of the same species is genetically similar to the other. This constitutes *genetic diversity*. Fundamentally, genetic diversity within a species is primarily the variety of populations that comprise it (Hartl and Clark 1997). Species with one population (endemic)[5] or reduced to a single population, such as the Taita thrush of the Taita hills in Kenya or the California condor in California, generally contain less genetic diversity than those consisting of many populations. Organisms occurring in numerous populations maintain considerable genetic diversity within the species. Conservation cares about the survival of populations, as well as of species, because of the unique genetic information contained in them. Moreover, the very survival of a species is dependent on the survival of its populations, for if only a few populations remain, there are few survival tactics that the species can deploy in the face of threats such as global warming. Each population contains a distinct set of genetic instructions for how the species might adapt to threats (Hartl and Clark 1997). *Species diversity*, which is

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[3] In this respect, Grimm (1998) and Jax, Jones, and Pickett (1998) refer to the 'self-identity of ecological units'. At the heart of the task of delineating ecosystems is the question of what constitutes the identity of an ecological unit through time, *i.e.* self-identity. The determination of self-identity requires that we know what the 'essence' of an ecological unit is, and the answer is highly dependent on how we define and specify the ecological unit of interest. Dr Jones and collaborators (Grimm 1998) have developed a framework to provide unambiguous definitions of ecological units. The components of this framework are different criteria describing the spatial or process-based boundaries of a unit, the degree of required internal relationship and the level of abstraction at which an ecological unit is specified. These criteria can be used in a graphical model that represents the definitions of ecological units. The model can then be used to see if an ecological unit has changed. The scientists are continuing to develop this model to help ecologists and managers decide whether or not a system of interest has changed and how it has changed.

[4] A population is defined as a group of organisms in time and space, which can interbreed to produce viable offspring (Hartl and Clark 1997).

[5] Endemism describes species that are native to a particular geographical area or continent and are not found naturally anywhere else in the world. Endemism occurs when populations of one species are separated so that they cannot interbreed. Both populations continue to breed and evolve separately. In time, it is possible they will become two separate species. (http://cgi.netscape.com/cgi-bin/plug-in_finder.cgi?text/rtf 1 July 2002)

what most people mean when they talk about biodiversity, refers to variability of organisms. The designation 'species' is the last level of the classification in a taxonomic hierarchy that includes in a descending order: kingdom, phylum, class, order, family, genus and species.

The fundamental social, ethical, cultural, and economic values of biodiversity have been recognised in religion, art and literature from the earliest days of recorded history (WRI 1991). Human societies derive many essential goods from natural ecosystems, including seafood, game, fodder, fuel wood, timber, fibre and pharmaceutical products, among many others. These goods represent important and familiar parts of the economy because they are tangible and have direct economic implications. In addition to goods, ecosystems provide services, which have been less appreciated until recently (WRI 1991). Natural ecosystems perform fundamental life-support services 'for free' without which human civilisations would cease to thrive. These include the purification of air and water, detoxification and decomposition of waste, regulation of climate, regeneration of soil fertility etc. These services are self-sustaining and therefore maintain biodiversity, from which key ingredients of agricultural, pharmaceutical and industrial enterprises are derived.

These arrays of services are generated by a complex interplay of natural cycles powered by solar energy[6] and operating across a wide range of space and time scales. The process of waste disposal, for example, involves the life cycles of bacteria, as well as the planet-wide cycles of major chemical elements such as carbon, phosphorus and nitrogen. Such processes are worth many trillions of dollars annually (Daily and Ellison 2002). An authoritative study by Bryant (1999) estimated these benefits at over US$ 30 trillion per year, far more than the annual GNP of our planet. Since these services and benefits are not traded in economic markets, they carry no price tags that could alert society to changes in their supply or deterioration of underlying ecological systems that generate them. However, threats to these systems have been noted and there are efforts geared towards identifying and monitoring these ecosystem services both locally and globally, and for the incorporation of their value into decision-making processes. The signing and domestication of various environmental conventions and treaties such as the Convention on Biological Diversity (CBD) are examples of efforts to curtail further deterioration of the environment and biodiversity, in particular.[7]

Other than the ecosystem services, there are other specific values attached to an ecosystem by different communities. These are well known and provide a deep appreciation of natural ecosystems. Such values include aesthetic beauty, intellectual and spiritual values as exemplified by the traditions of diverse cultures. These values stimulate various activities, such as art, religion, sports fishing and hunting, mountaineering and ecotourism. To many, nature is a major source of wonderment and inspiration, peace and beauty and fulfilment and rejuvenation.

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[6] Solar energy and hydrothermal vents are the only power sources that drive natural cycles of life on earth. The hydrothermal vents are few and they provide power to a very small proportion of life in the oceans and hence are least known (Bock and Goode 1996).

[7] 'The objectives the Convention on Biological Diversity to be pursued in accordance with its relevant provisions, are the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding' (Article 1 of the CBD).

There are many more values that are not clear, as they are speculative, unused or unknown at present, but which could enhance the material well being of humankind if they were discovered and exploited. They may become useful or vital at some time in the future owing to changing circumstances. These are the 'option' values, which exist because the understanding of the ecosystem is still insufficient and not all organisms on earth have been studied. For this reason, future options may be diverse, as no one knows the future value systems. Perhaps what is considered useless or even harmful today may be of immense use tomorrow. This is the drive behind *ex situ* conservation for genetic material and seed, as they can be used to adapt to unforeseen changing circumstances.

Goods and services derived from ecosystems are the basis of economic development. Both ecosystem goods and services and the natural capital stocks that produce them, contribute to human welfare both directly and indirectly, and therefore represent part of the economic value of the planet. These services, though they have not been attached any economic value, are the backbone of economic development. For instance, the role of the ecosystem in hydrological cycles provides opportunities for the use of water and hydropower. Genes from wild species are used to improve domestic species such as coffee, tea, a variety of food crops and domestic animals. Enjoyment of nature by tourists who visit wildlife-protected areas generates direct foreign income to countries such as Kenya, where tourism ranks high in terms of foreign income. All these goods and services enhance production for economic development. The options for increased and more sophisticated use of biological resources are immense. Conservationists argue that it is very short-sighted to sacrifice any of the biological variability in order to achieve short-term financial and economic objectives, especially because less biodiversity may have profound implications for humanity (Costanza *et al.* 1997).[8]

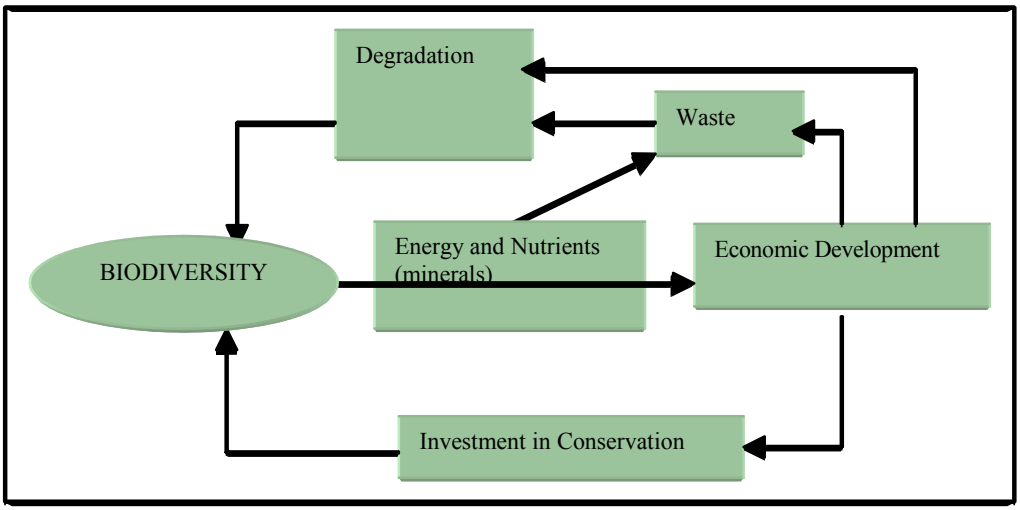
While biodiversity provides the basis for economic development, the tendency has been towards over-exploitation and degradation through damage caused by the introduction of harmful waste into ecosystems or excesses of naturally occurring substances such as carbon dioxide. As a result of economic development, less and less energy and nutrients are retained within the ecosystems, thus reducing their complexity and distorting their stability. The ultimate result is a catalytic effect, which leads to increasing loss of biodiversity and shrinkage as more is used without exact replacement (Figure 2.1).

Economic development that destroys habitats and impairs ecosystem services can create costs to humanity over the long term that may greatly exceed the short-term economic benefits of development. These costs are generally hidden from traditional economic accounting, but are nonetheless real and usually borne by society. Tragically, a short-term focus in land-use decisions often sets in motion potentially great costs to be borne by future generations (Costanza *et al.* 1997). This suggests a need for policies that achieve a balance between sustaining ecosystem services and pursuing the worthy short-term goals of economic development. In such a situation, economic development must cater for biodiversity maintenance through investment in conservation efforts.

[8] Costanza *et al*. (1997), estimated the economic value of 17 ecosystem services for 16 biomes, based on published studies and a few original calculations. For the entire biosphere, the value (most of which is outside the market) is estimated to be in the range of US$ 16-54 trillion per year, with a mean of US$ 33 trillion per year. This is considered a minimum estimate, because of the nature of the uncertainties.

Finally, biodiversity is relevant not only at global or regional levels, but also at national and local levels. At the global level, there is clear evidence of economic development through the exploitation of biodiversity, particularly in the developed countries. Ironically, people occupying or living in the vicinity of the world's areas richest in biodiversity are the poorest. Statements such as *'We know the people who benefit from wildlife conservation and those who cut our forest, these people are the rich and live in towns, they are becoming richer every day and we, the poor, we are becoming poorer every day' (Informant Maktau, Tsavo area)* are not uncommon in almost all conservation areas in developing countries. Indeed, while global economic forces may be driving the loss of biodiversity, the impacts of this loss are felt at the local level. This implies a strong linkage between conservation and poverty. Therefore, helping the rural poor to manage effectively and benefit from their resources may help to ensure conservation of biodiversity. The local knowledge that people have about their resources and how these resources should be managed provides a critical resource for all of humanity. Indigenous peoples who live in intimate contact with biodiversity could provide much of the intellectual raw material for a shift to sustainable societies, provided they are empowered to act in their own self-interest but not exclusive of national and international interests in conservation of biodiversity. Thus, biodiversity and cultural diversity can be conserved together, enabling both to prosper.

Figure 2.1
General relationship between biodiversity and economic development



The problem of biodiversity loss

The loss of biological diversity may take many forms, but at its most fundamental and irreversible, it involves the extinction of species. Over geological time, all species have a finite span of existence. Species extinction is therefore a natural process, which occurs without the intervention of man. However, it is beyond question that extinctions caused directly or indirectly by man are occurring at a rate which far exceeds any reasonable

estimates of background extinction rates and which, to the extent that it is correlated with habitat perturbation, must be increasing. Unfortunately, quantifying rates of species extinction, both at present and historically is difficult and predicting future rates with precision is impossible.

Loss of biodiversity is a global problem and has received considerable attention during the past two decades or so. It has been realised that human activities have gravely altered the chemistry, biology and physical structure of the Earth's land and water. What scientists are calling the '*human footprint on Earth*' is increasingly impairing the planet's ability to maintain the quality of human life and may lead to the loss of up to two-thirds of all plant and animal species during the second half of the 21st century (ENS 1999).[9] The oft-cited causes of biodiversity loss are habitat loss and fragmentation (*e.g.* Wilson 1992; Skole and Tucker 1993, Chengappa 1995; IUCN 2000), overexploitation and trade (Hemley 1994; Berger 1993; Lemonick 1995; IUCN 2000), pollution (Schindler 1988) and the invasion of exotic species (WCMC 1992; Donlan *et al.* 2000). All these variables can be linked directly or indirectly to the unprecedented human population growth (Harrison 1992; Cincotta *et al.* 2000, Mwasi 2001), technological modernisation and the concomitant erosion of customary and traditional beliefs, norms and practices (Fletcher 1990; Worster 1993), unsustainable land-use policies (Miller 1995), economic development policies (Goodland *et al.* 1990), and the misevaluation of biological wealth (WRI/IUCN/UNEP 1992; Wilson 1992; Reid 1995; Simpson 1999).

The World Resource Institute (1992) proposes seven factors as the root causes of biodiversity loss. These include human population growth and increasing resource consumption; ignorance of species and ecosystems; poorly conceived policies; global trading systems; inequity of resource distribution; failure to account for the value of biodiversity; and a complex interaction of these factors.

Conservation efforts

The question of 'why conserve biodiversity' can be asked from a number of different perspectives, all conditioned by a variety of cultural and economic factors. The various answers given, all arguing for the maintenance of biological diversity, are becoming increasingly confused. Different goals have different implications for the elements and extent to which biological diversity must be maintained. These goals include: the present and potential use of elements of biodiversity as biological resources, the maintenance of the biosphere in a state supportive of human life (*i.e.* maintenance of ecological services essential to mankind) and the maintenance of biological diversity *per se*, in particular, of all presently living species.

The drive to conserve biodiversity has resulted in concerted efforts at the global, national and local levels to control and minimise loss of biodiversity. These efforts have been directed towards conservation within the natural environment (*in situ* conservation) or elsewhere in an artificial environment under artificial conditions (*ex situ* conservation), such as in gene and

[9] Environment News Service (ENS) 2 August 1999, St. Louis, Missouri. 'Human impact triggers massive extinctions' (http://www.uwsp.edu/geo/courses/geog100/EBBPlantExtinct.htm 3 June 2002).

seeds banks. At the global level, Agenda 21, Section II (UNCED 1992)[10] addresses the issue of conservation and management of resources, including biodiversity for development. Other agreements at the level of the United Nations Conference on Environment and Development (UNCED) pertaining to biodiversity conservation include the Convention on Biological Diversity (CBD),[11] the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)[12] and the Convention on the Conservation of Migratory Species of Wild Animals (CMS).[13] Further agreements under the CMS include the Convention on Wetlands of International Importance, especially the Waterfowl Habitat (RAMSAR) and the United Nations Educational and Cultural Organization (UNESCO) Convention Concerning the Protection of the World Cultural and Natural Heritage.

The Convention on Biological Diversity, which has now been ratified by some 180 governments, takes the lead at the global level in the conservation of biodiversity. It calls for international cooperation in conserving biological diversity, using biological resources in a sustainable manner and ensuring that the benefits arising from such use are equitably distributed. This combination of biological, social and economic objectives has made the CBD a powerful instrument for human welfare and therefore a potential solution to many resource conflicts, if localised and implemented appropriately.

Under the CBD, hundreds of new investments have been made in biodiversity conservation, covering everything from research to local enterprise development to improved management of protected areas at the national and local levels. At the national level, there have been resource management systems based on national laws, policy and institutions. These management systems have often been sectoral in nature, dealing with a particular component of biodiversity, such as forest, wildlife and related components, such as land, water and agriculture. Many countries have attempted to implement Agenda 21 as well as

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[10] UN Agenda 21 Section II on Conservation and Management of Resources for Development, UN General Assembly A/CONF.151/26 (Vol. I) Distr. General 12 August 1992.

[11] The Convention on Biological Diversity (CBD) was adopted at Nairobi on 22 May 1992. It was opened for signature in Rio de Janeiro on 5 June 1992, with 157 signatories at the time of the United Nations Conference on Environment and Development, (Rio De Janeiro, 3-14 June 1992). It entered into force on 29 December 1993 and currently about 180 countries are signatories. The Conference of the Parties is the governing body of the Convention, and advances implementation of the Convention through the decisions it takes at its periodic meetings. To date the Conference of the Parties has held 6 ordinary meetings, and one extraordinary meeting (the latter, to adopt the Biosafety Protocol was held in two parts). From 1994 to 1996, the Conference of the Parties held its ordinary meetings annually. Since then these meetings have been held somewhat less frequently and, following a change in the rules of procedure in 2000, are now held every two years. The COP (Conference of Parties) met in Nassau (November-December 1994), Jakarta (November 1995), Buenos Aires (November 1996), Bratislava (May 1998), and Nairobi (May 2000). The sixth meeting was held in The Hague (8-19 April 2002) and the seventh to be held in Kuala Lumpar Malaysia (9-20 February 2004).

[12] CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an international agreement between governments. Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten their survival. CITES was drafted as a result of a resolution adopted in 1963 at a meeting of members of IUCN (the World Conservation Union). The convention was finally agreed at a meeting of representatives of 80 countries in Washington DC, United States of America, on 3 March 1973 and entered in force on 1 July 1975.

[13] The Convention on the Conservation of Migratory Species of Wild Animals (also known as CMS or the Bonn Convention) aims to conserve terrestrial, marine and avian migratory species throughout their range. This convention entered into force on 1 November 1983 and its membership has grown steadily to include 76 countries at 1 November 2001.

becoming signatories to various international agreements, which are being 'localised' (*i.e.* adapted to the conditions in the country involved). Since ratifying the CBD on 26 July 1994, Kenya has endeavoured to localise it. A notable milestone, which is also in accordance with Agenda 21 Section II (UNCED 1992), was the enactment of the Environment Management and Coordination Act (EMCA) in January 2000.

Conservation approaches

Evolutionary conservation is usually described as having undergone three phases: preservation, protection and conservation. We will here discuss it, however, in two broad frameworks: the traditional and current/modern conservation approaches. Traditional conservation efforts focused mainly on specific endangered species and protected areas. This approach is based on the paradigm of 'protectionism', which embraces preservation and protection. The protected species or areas are not supposed to be used by people for whatever reason. Some habitats, for example, may become endangered; the remaining habitat is often protected from use. Old-growth forests or tall grass prairies are examples where preservation is a primary practice. In situations where wildlife or forest biodiversity has been seriously degraded, preservation and active input to replace degraded components may be imperative. Although this approach remains a high priority, it has become clear in recent years that the entire fabric of life needs to be conserved in the context of biodiversity. This realisation has given way to what may be regarded as modern conservation.

The current conservation approach recognises the need to use, protect and restore biological resources. It is a broad approach that encompasses traditional preservation and protection, as well as the restoration of degraded biological resources. Unlike 'protectionism', however, 'conservationism' recognises the inevitable need for economic development, especially for the poor communities living around protected areas. In this regard, modern conservation is central to sustainable development[14] and sometimes the two are used interchangeably. Thus, conservation is the management of a natural resource in a way that permits its sustenance over the long-term. However, it also includes cases in which resources are not actively managed. For instance, wilderness areas in the United States are conservation areas where little or no management is practised.

The drift towards modern conservation can be attributed to the awareness of the diverse and complex values of biodiversity and ecosystem interconnections. Indeed, it has been argued that it is not possible to separate human socio-cultural systems from the biological universe of which they are a part. Loss of biodiversity despite protectionism has been unabated and local people living around protected areas are languishing in poverty. Protectionism faired well in the game of 'power' which consists in imposing one's own value system and weakening (if not overtaking) the values of others, thereby reducing the cultural diversity that maintains the same resource. This shows that a close link exists between ecological systems and cultural systems. Biodiversity is not an end in itself; it can no longer

[14]The WCED (1987) final report, '*Our common future*' defines sustainable development as development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs.

be thought of independently of the socio-cultural environment which it sustains (Elmandjra 1994). The modern approach to conservation is therefore tending to broaden its scope, covering ostensibly what may be delineated as an ecosystem. In a conference organised by International Institute for Sustainable Development (IISD 1999) prior to the CBD fifth Conference of Parties (COP 5), Jeff McNeely, IUCN's Chief Scientist, highlighted the need for ecosystem approaches, recognition of ecosystem services and products, as well as for management at different geographic scales. He stated that the ecosystem approach is able to address many sectors, human impacts, multiple uses and ecosystem restoration, while being more cost-effective than species management. In the context of ecosystem approach and sustainable use the Malawi Principles of the Ecosystem Approach were adopted (COP 5 Decision V/6). They include, *inter alia*, that management objectives are a matter of societal choice; management should be decentralized to the lowest appropriate level; ecosystems must be managed within the limits to their functioning; the ecosystem approach should be undertaken at the appropriate scale; and management must recognize that change is inevitable. The IISD conference (IISD 1999), noted that the principles are interlinked, and that those involved in implementing the ecosystem approach should remain accountable to their constituencies. These principles are to overcome the shortcomings and deficiencies often found in classical nature conservation approaches, yet meant to supplement, not replace, other management options. This approach is not a static model, but provides a process for engaging stakeholders in managing biological resources. Deficiencies of classical conservation approaches highlighted include, *inter alia*: failure to recognize the importance of ecosystem functioning, sectoral interests and linkages between nature and culture; a focus on species or protected areas; lack of stakeholder participation in management; and an inappropriate division of costs and benefits. The constraint of implementing the ecosystem approach include, market and economic distortions, traditional social practices, natural forces of change and economic and social development. To quote Caldwell (1972: 413):

> Application of the ecosystem concept implies a whole new way of organising man's relations with the natural world, an ecosystem approach to public policy implies fundamental changes in the rights and responsibilities of individuals and corporations in the possession and use of land.

Nonetheless, the property implications of ecosystem management would be unremarkable if the spatial requirements were to be satisfied by those lands under private ownership. More importantly, ecosystem managers have to diversify their conservation approaches and fashion an extraterritorial strategy of extending well beyond conservation areas and accommodating the desire of those outside conservation areas to extend into conservation areas. This implies a form of sober management approach with clear entitlement rights embracing not only rights to own, use and intervene, but also multiple legal orders such as state, customary, religious, project and local laws (Meinzen-Dick and Pradhan 2002). In the context of Kenya and other developing countries, this should build on the initial achievements and limitations of community-based conservation.

Community-based conservation: The global and Kenyan perspectives

Wildlife and natural habitats have been decreasing in many African countries, mainly through habitat destruction and over-harvesting. In response to this development, and as ecological

movements were developing in the western world, many protected areas have been created all over the continent, with the goal of isolating as far as possible endangered or unique species and avoiding all human impacts. Thus, for a long time, management has meant preservation and/or protection, that is, maintaining wildlife stocks in closed areas. It has rapidly been discovered that this kind of policy fails to actually stop wildlife decrease, unless authorities have large financial and coercive powers which do not endear wildlife protection to the communities. Protected areas have been constantly facing social and economic difficulties in the face of local populations who have lost access to resources they have always exploited. After many decades of conflicts, a process of 'softening' these policies begun in the 1980s, with projects aimed at integrating local people into management (Kiss 1990, Prins 2002). Since then, preservation has been replaced by 'conservation', which, in theory, means sustainable use for current human benefit, without compromising future generations' needs (CMED 1989). In practice, however, it has often been translated into nothing more than 'participation' in externally decided programmes. This second stage in African wildlife management has rarely been successful, mainly because participation has not been enough to stimulate local populations to support conservation or to incite them to adopt sustainable behaviour (IIED 1994). In the face of these failures and, at the same time, of many cases of successful common property management systems (Berkes *et al.* 1989), a third approach is now emerging: the local management of wildlife, that is, a management of *practices* and not only *resources*, and also a management that is actually decided, conceived and executed by, and not only with, local people. This is now the model for community-based conservation.

The community-based conservation approach to biodiversity conservation in the context of current conservation was entrenched following the UNCED consensus that the implementation of 'sustainable development' should be based on local level solutions derived from community initiatives (Ghai and Vivian 1992; Ghai 1994). Agenda 21 advocates a natural resource management approach that ensures community participation, which is to be achieved through government decentralisation and devolution to local communities of the responsibility for natural resources held as commons (Holmberg *et al.* 1993). Based on this, national governments, NGOs and donor agencies have developed projects and programmes that aim at community participation (Baland and Platteau 1996; Borrini-Feyerabend 1996; Berkes *et al.* 1998). However, as Leach *et al.* (1999) argue, these community-based natural resource management practices frequently fail to perform as expected. Western and Wright (1993) noted that most of the community-based conservation approaches in wildlife and forest biodiversity conservation have been of creating hope rather than being a reality. Barrow *et al.* (2001) note that some of the community conservation approaches have been more or less independent of traditional conservation agencies, who remain reluctant in their approach and may even use socially-oriented terminology as a way of generating funding. In some cases, as in Kenya, activities have been inconsistent with policies (Barrow *et al.* 2001).

Participation by local communities in community-based conservation approaches is still hesitant or rather still in its infancy and ownership is often not yet in the hands of local communities (Larsen 2000: 51). Larsen (2000) and Barrow *et al.* (2001) note that community conservation is still considered a high-risk strategy which fails to attract funding. Barrow (2001) notes that the process of establishing community institutions has often been hurried,

leaving doubts concerning project ownership as well as capacity. Furthermore, the community conservation approach lacks due consideration for local communities and their specific rights.

In the context of the community conservation approach, *'co-management'* (Larsen 2000) and *'collaborative management'* (Borrini-Feyerabend 1996) are the newest terminologies. Others include *participatory management, joint management, shared management, multi-stakeholder management or round-table agreement*. All these refer to a kind of 'partnership' by which various stakeholders agree on sharing among themselves the management function, rights and responsibilities for a territory or set of resources under protected status (*ibid*: 8). Specifically, in a collaborative management process, according to Borrini-Feyerabend (1996), the agency with jurisdiction over protected areas (usually a state agency) develops collaborations with other relevant stakeholders, primarily local residents and resource users. These collaboration arrangements specify and guarantee their respective functions, rights and responsibilities over protected areas.

Kenya's biodiversity

Kenya's landscape

Kenya occupies 582,650 km^2, of which 98% constitutes terrestrial ecosystems, while 2% constitutes aquatic ecosystems, including about 536 km of coastline of the east coast of equatorial Africa between latitudes 5^0 N and 5^0 S and longitudes 35^0 E and 41^0 E. Despite its equatorial position, the climate is characterised by marked inland variations caused by altitude and strong marine influences along the coast. The altitude ranges from sea level to 5,200 m on the summit of Mt Kenya, with most of the central and southwest region of the country forming a plateau of between 1,400 and 2,800 m above sea level. This plateau is bisected longitudinally by the Eastern Rift Valley, which crosses Kenya from Lake Turkana in the north to Lake Natron in the south. The edge of the Rift Valley forms escarpments, which rise to over 3,000 m at some points on the eastern side bordering the central highlands.

Monthly mean temperatures range from below 0^0 C on top of Mt. Kenya to over 30^0 C along the coast and in Northern Kenya, whilst annual rainfall ranges from less than 100 mm in the northeast to over 1500 mm on the slopes of Mt Kenya (NBU 1992). An equatorial climate is found only around Lake Victoria, in Nyanza and Western Province, whilst tropical, tropical continental desert and true desert climates are found in Narok, South Taita, and Eastern and Central Northern Kenya. The Coastal and Central Highland regions show equatorial and tropical climates modified by maritime and altitudinal influences, respectively. The complex mix of climatic regions of different size, characterised by a simple, but asymmetric, pattern of rainfall and coupled with five main drainage basins,[15] determine the biological productivity of the different regions. There are 19 recognised ecological communities, which can be further subdivided into sub-categories (NBU 1992).

[15] Of the five main drainage basins, the Lake Victoria and Tana drainage basins account for 80% of total runoff while the remaining Athi, Rift Valley and Northern Ewaso Nyiro account for 20%.

Kenya's animal biodiversity

Kenya possesses little true tropical rainforest and therefore has fewer animal species than densely forested tropical countries. However, it possesses a unique assemblage of mega-fauna. In 1992, Kenya had an estimated 26,000 animal species. A simple taxonomic breakdown of both wild and domesticated species is as follows:

Table 2.1
Taxonomic distribution of animal biodiversity in Kenya

Taxon	Recorded number of species
Invertebrates (excluding insects)	3,009
Insects	21,575
Fish	344
Amphibians	101
Reptiles	211
Birds	1,079
Mammals	314
Total	26,633

Source: National Biodiversity Unit of Kenya (1992).

The quality of information on different taxa ranges from very good to fragile. Knowledge of the birds and mammals is relatively complete. For many of these species, population distribution and size have been studied (NBU 1992). Adequate species lists also exist for fish, butterflies, dragonflies and termites, but the distribution data are of lower quality. Detailed information exists for only a few of these taxa, usually because they contain economically important species, often those with an adverse economic impact or because of the interests of researchers in a particular taxon.

There are about seven species recorded as extinct and 198 species under various categories of threat.[16] These include two endemic primates (the Tana River Red Colobus and the Tana River Crested Mangabey), the black rhino, the endemic Taita Hills Swallowtail butterfly and Lake Victoria's unique schools of cichlid species.

Plant biodiversity

Kenya possesses an estimated 7,000 plant species (see Table 2.2 for the taxonomic distribution). Overall, knowledge of plant biodiversity in Kenya is relatively good, particularly for the vascular plant species. For the lower plant species, the data are highly fragmented. Currently, 256 plant species, including 18 endemic species, are threatened in some way (NBU 1992).

[16]The international system for classifying threatened taxa has eleven categories, as follows: extinct, extinct in the wild, critically endangered, endangered, vulnerable, lower risk, conservation dependent: near threatened; least concern, data deficient and not evaluated (IUCN 1994).

Table 2.2
Taxonomic distribution of plant biodiversity in Kenya

Taxon	Number of species
Fungi (Macrofungi)	335
(Lichens)	196
Algae (Macroalgae)	299
Bryophyta	555
Pteridophyta	274
Gymnospermophyta	15
Angiospermophyta	
Monocotyledons	1,359
Dicotyledons	4,567
Total	7,600

Source: National Biodiversity Unit of Kenya (1992).

Climate

Taita Taveta district is located south of the equator (2°00' S) and thus rainfall distribution is roughly related to the movement of the Inter-Tropical Convergence Zone (ITCZ). It experiences two rainy and dry seasons, which occur in the following order:

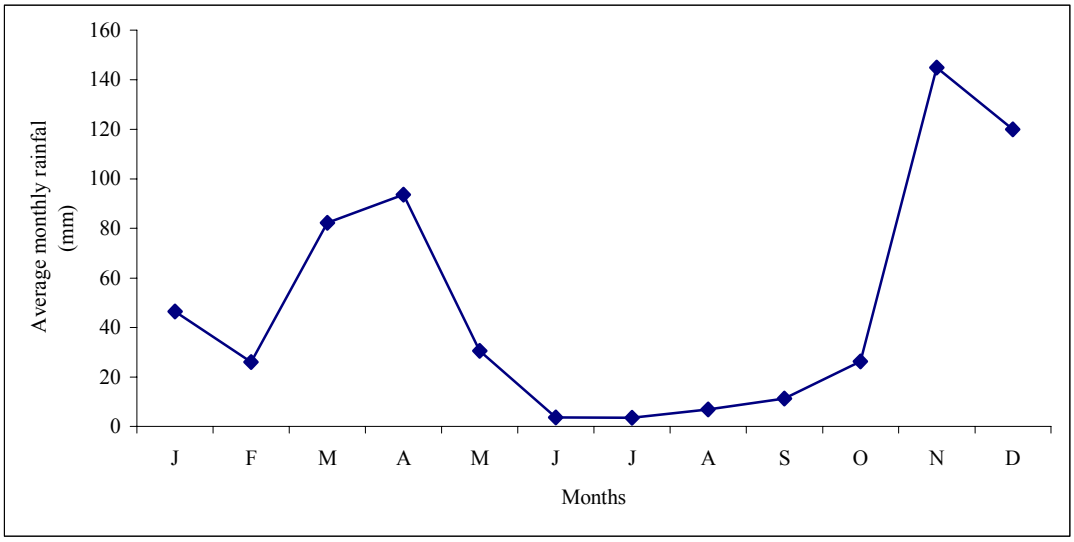
- a short dry season from January to February;
- long rains from March to April/May;
- a long dry season from May/June till October;
- short rains from November to December.

Variability between, as well as within, years is quite high. The average annual rainfall varies from 200 mm in the lowlands to 1200 mm in the highlands. These amounts are approximately equally divided over the two rainy seasons. However, the highest amount of rainfall occurs in November. In Voi, the November average monthly rainfall is 145 mm compared with an average monthly rainfall of 94 mm in April (Figure 2.2). In the lowlands, the major type of rainfall is convectional, which is characterised by short busts of high intensity rains which last for a few minutes to one hour or longer within irregular periods of drizzle or no rain. Each heavy shower of rain corresponds to the sudden release of suspended water from vigorously ascending air. The hills receive an orographic type of rainfall of low intensity, which may last for hours (Bell 1979).

Analyses of the rainfall patterns (Ogallo 1979) suggest that long-term rainfall patterns in Taita include cyclical droughts, such as those experienced in 1887, 1921, 1970-71, 1974-75. In the last 30 years (1969-1999), the major droughts were experienced in 1984, 1988 and – though less severe – in 1998. In the course of this research, drought was being experienced in most parts of Taita (in 2000). Between 1969 and 1999, the highest rainfall was experienced during the *El Nino* phenomenon of 1998. Other high rainfall exceeding 750 mm, was recorded in Voi in 1969, 1972 and 1978. However, the average 30-year annual rainfall is 595 mm. Although long-term rainfall patterns in Taita are characterised by cyclical droughts, Ogallo (1979) notes that no long-term predictable trends have been clearly detected. The variability in rainfall and its unpredictability contribute to the complexities of land use and human-wildlife conflicts.

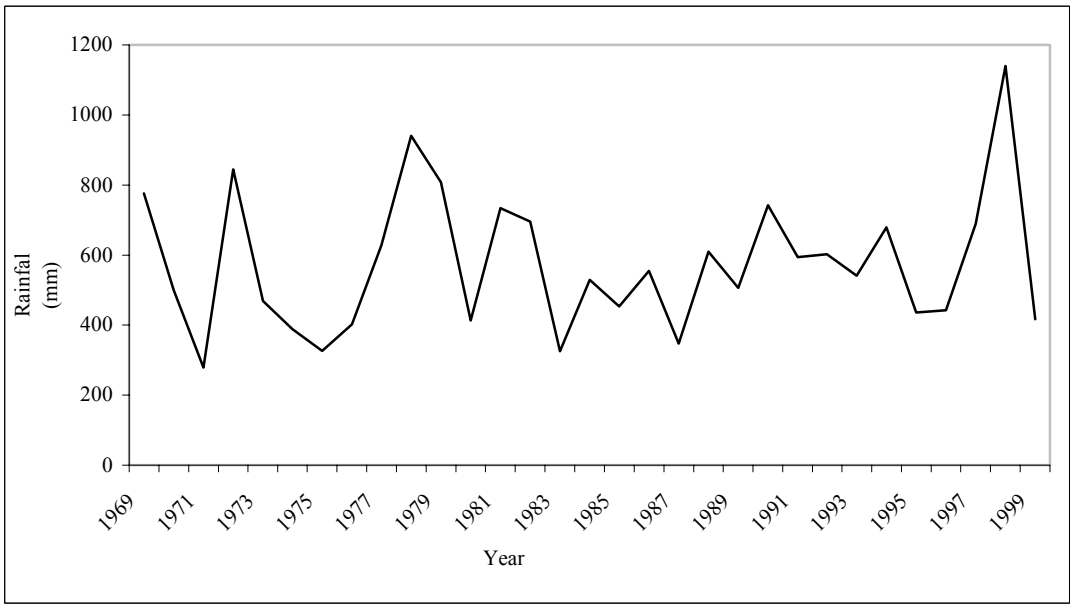
The potential evapotranspiration is about 2000 mm per year. Average monthly temperatures are constant throughout the year and the monthly average temperature varies between 19.3° C in the highlands and 30.6° C in the lowland.

Figure 2.2
Average monthly rainfall for Voi in Taita Taveta District, 1969-1999



Source: Meteorological Department, Voi Station

Figure 2.3
Annual rainfall for Voi in Taita Taveta District, 1969-1999



Source: Meteorological Department, Voi Station

Agro-climatic zones

The agro-climatic zone is based on Braun's (1980) index of water availability, which reflects variation in rainfall and evapotranspiration. It is based on the ratio of average annual rainfall (r) to average evapotranspiration (Eo) and represents variation in the water availability for plant growth. The zones with a higher index value have both greater agricultural potential and more luxurious natural vegetation than zones with a lower index value.

Table 2.3
Taita Taveta (Braun's) agro-climatic zones

Zone	r/Eo	Climatic designation	Characteristic natural vegetation	Agricultural potential	Taita Taveta	Percent
1	80%	Very humid	Moist forest	Very high		
2	65-80%	Humid	Moist and dry forest	High	42,000 ha	6.54%
3	50-65%	Sub-humid	Dry forest and moist woodland	Medium to high		
4	40-50%	Sub-humid to semi- arid	Dry woodland and bushland	Medium	10,000 ha	1.56%
5	25-40%	Semi-arid	Bushland	Marginal		
6	15-25%	Arid	Bushland and scrubland	Low (effectively none)	591,600 ha	91.90%
7	15%	Very arid	Desert scrub	None	None	

Source: Synthesised from RoK, Ministry of Tourism and Wildlife, Tsavo Regional Land Use Study, Final Report 1982 and District Development Plan 1994-1996.

Note: The Tsavo National Park area is not included in the calculation of the percentage areas, thus the area considered is 643,600 ha (i.e. 1,697,500 ha district area less 1,053,900 ha park area).

Very high to high potential: This covers about 42,000 ha, where coffee, maize, beans and vegetables, as well as intensive livestock rearing form major enterprises. There is little or no opportunity to expand cropland, but there is potential for increasing output per unit area of land.

Medium and medium to high: This comprises about 10,000 ha and is used mainly for maize, coffee, beans and zero-grazing. Potential for increasing cropland is also limited, due to high population density and small farm size. However, there is potential to increase production per unit area through intensive agricultural practices.

Low, marginal to medium: This covers 91,9% (590,000 ha), where ranching and sisal farming on a large scale are the main land uses. Rainfall is the limiting factor, but there is potential for agricultural expansion by use of modern technologies, including irrigation and the planting of drought-resistant and early maturing crop varieties.

Geology and geomorphology

The geology of the district and, especially, of the Tsavo area is described as complex, ranging from the Precambrian (over 600 million years old) basement system of crystalline rocks and metamorphose sediments, to the Duruma sandstone series of Permian (225-270 million years), Triassic (180-225 million years) and Carboniferous (270-350 million years) age. Geologically, the rocks of the Tsavo area can be described in two large groups: (i) the

Archaean-Precambrian (oldest known Cambrian) rock; and (ii) the Pleistocene (2-3 million years) to recent basaltic lava flows.

The Archaean-Precambrian rock includes the basement system, which has been affected by metamorphism, granitisation and deep shearing. The Chyulu volcanic hills are of Pleistocene to recent age. About 600 volcanic cones have been counted from aerial photographs of the Tsavo area (Saggerson 1962; Sanders 1963; Walsh 1963; Parkinson 1974). Geologically, the Taita hills – Dabida and Sagalla – are made of metamorphic rocks covered by a hard quartzite cap. They are described as the northernmost outpost of the ancient Eastern Arc Mountain of Tanzania and Malawi.

The geomorphology is dominated by the occurrence of an extensive plain of both erosional and sedimentary origin. A number of erosional surfaces can be distinguished, but only the latest, the Nyika level of the end of the Tertiary age, is present over a large area and not much is dissected yet. Of the older surface, only remnants can be found at the base of the Chyulu hill and Yatta plateau (Ojani 1976). The Yatta plateau consists of a protective cap of Miocene phonolite, only about 10 m thick, overlying gneiss of the basement system. The erosional plains are developed on a variety of rock types, such as the basement system rock and the Duruma sandstone. The sedimentary plains are developed on the Pleistocene 'bay deposit' of an unconsolidated clayey and saline nature on the eastern side. The gradual east-west gradient rises from the sea level in the east to over 1,000 m in the west. The slope is gentle in the east, becoming steeper in the west. The generally flat relief is interrupted by (i) a basement massif which constitutes the Taita Hills-Dabida, which comprises about 48 hills, of which the highest are Vuria (2,228 m) and Sagalla (1,450 m); (ii) the Machakos highlands in the west; and (iii) by '*Inselbergs'*[17] such as Endau, Ngulia, Kasigau and Kilibasi. They consist mostly of a quartzitic type of basement system rock, which makes them resistant to weathering and erosion. Where the basement system consists of crystalline limestone, low elongated ridges are often formed.

Hydrology

In terms of regional hydrology, the Tsavo area belongs to the drainage basin of the Tana (Tiva), Athi-Tsavo-Galana and Voi rivers, which originate from high rainfall areas. Only the Athi-Tsavo-Galana rivers flow throughout the year, while the Tiva and Voi rivers are seasonal (RoK 1996). In the dry season, these seasonal rivers do not reach the Tana river which drains into the Indian Ocean. However, they contain water in the sandy riverbeds, which can be collected by digging shallow holes, as is done by both man and wild animals. These rivers are seasonal, mostly because the area receives relatively low rainfall and the topography is extremely flat, while the soils are in general deep and have a reasonably good infiltration rate. However, floodplains are found only along the lower reaches of the Tiva River and along the Voi River, which flows through a floodplain only a few hundred metres wide. Floodplains are virtually absent along the Athi-Tsavo-Galana Rivers.

[17] Steep-sided, isolated hill that stands above adjacent nearly flat plains. It may have a narrow pediment at its base. Locally, flared or steepened margins occur. It is best developed under a savannah climate. Online Dictionary of Earth Science, Oxford University http://www.xrefer.com/entry/615575.

Table 2.4
Summary of the hydrology of the Taita Taveta District

River basin	Discharge (m^3/day)	Constituent	Remarks
Voi River		Iyale springs, Kigombo river, Kisheni dam, Mwambirwa river, Mwakiki spring. Tausa springs	Voi river becomes very insignificant as it drains into the Tana river which flows into the Indian Ocean
Flood flow	12,588		
Normal	8,009		
Lowest discharge	4,850		
Tsavo River		Mwakanjo stream, Mwalui springs, Paraga valley, Siriri stream, Tsavo river, Njukini springs, Mkulu spring, Mzima spring	Has a perennial flow throughout its entire length. Tributaries such as Kishushe, Kedai, Paraga and Mbololo are perennial at their headwaters in the Taita hills. Main tributary of Sabaki river.
Flood flow	56,715		
Normal	52,761		
Lowest discharge	12,080		
Mwatate River		Bugule spring, Bura river, Mangau springs, Makwasinyi	Flows into Mangeri swamp and into Kwale district
Flood flow	18,590		
Normal	6,882		
Lowest discharge	3,002		
Lumi River		Kitobo springs, Njoro kubwa springs, Njoro springs, Sembeki springs, Maduli springs	Has a perennial flow throughout the entire length. Lakes Jipe and Challa store large volumes of water totalling about 20,000m^3 and 300 million m^3, respectively
Flood flow	418,954		
Normal	77,504		
Lowest discharge	56,715		
Totals			
Flood flow	506,847		
Normal	145,156		
Lowest discharge	74,613		

Source: Author's compilation from the Taita Taveta District Specific Environmental Action Plan, March 1996 (RoK 1996).

Small springs and streams are scattered along the Yatta plateau, in the highlands and in the dissected plains. The highland springs and streams, particularly those located in the forest areas, carry water nearly throughout the year. In the lowlands, the discharge is small and often saline by the end of the dry season. In most cases, they become highly contaminated through intensive use by animals. There are also scattered natural waterholes in the lowlands, which are filled in the rainy season by run-off water and may contain water for several months during the dry season. The density of these waterholes is about one per 10 km^2 and it is believed that elephants have played a major role in their formation (Ayeni 1975).

There are several dams built on intermittent rivers. Within the park area, the most important one is the Aruba dam in the Voi River, which holds a lot of water throughout the year. In the hills, several dams such as Kisheni dam in Wundanyi have been constructed across small intermittent streams. Several boreholes have also been sunk in the ranches and the park, but most of them yield saline water of low quality. However, most ranches have their water supply pumped either from the Galana River or from a branch of the pipeline running from Mzima springs to Mombasa (Sanders 1963; Van Wijngaarden and Van Engelen 1985).

Soils

The soils of the Taita area range widely in depth, colour, drainage, structure, chemical and physical properties. However, most soils have a sandy texture in the subsoil. In general, there are four major soil types, which are as follows (van Wijngaarden and Engelen 1985):

1. *Red sandy soils:* These occur on the basement system and they are shallow in the Galana, Tsavo and Athi valleys, where underlying rocks are generally exposed in platforms and narrow ridges. The soils are deepest around the base of hills, such as Sagalla. In the mountains and hills of basement rock, the soils are shallow and stony (*Regosols, Rendzinas, Cambisols*). In the uplands with basement system rocks, moderately deep to very deep, friable to firm sandy clay –to clay soils have developed (*Chromic Acrisols* and *Luvisols*).
2. *Grey acidic soils:* These are dark heavy clay soils that have accumulated in the flat poorly drained plains and valley bottoms. They occur in the belt underlain by argillaceous bedrock and support perennial herbs with scattered trees, which take the form of open savannah on black cotton soil
3. *Maroon kaolinite soils:* These soils are associated with gently dipping sandstone. They contain less granite and migmatite than the red sandy soils. Owing to their shallowness and coarse texture, these soils support rather poor and sparse vegetation compared with those formed over the metamorphic rocks.
4. Other soil types include:
   a. Laterite ironstone, which occurs in small patches in many parts of the lowlands, especially around the foot of basement system hills at Mzinga.
   b. Alluvial deposits, which consist of red brown and dark grey earth. They are common along the course of the lower Tiva River.
   c. Secondary limestones: These are derived from underlying crystalline limestone sand and are common in the southeastern and northern section of the district.

In general, the parent material and physiography largely determine the pattern of the soils. The variations in the present-day climate are in general too small to appear in the morphology or chemistry of the soils in Taita, particularly in the plains. The Taita and Chyulu hills form the exception. Here soils are found which differ clearly from those dominating the lowlands. This can be attributed mainly to a much higher rainfall on the hills. However, there are several major soil regions, which are distinguishable from each other. These include (i) mountain, hill, low ridge and scarps; (ii) foot slopes, piedmont plain and plateau; (iii) uplands; (iv) erosional plains; (v) sedimentary plains; (vi) floodplains, (vii) alluvial valleys and bottom-lands; and (viii) volcanic plains and lava flows.

Taita animal and plant biodiversity

Fauna

The wildlife (animals) of Tsavo mainly occurs in the lowland, although there are several forest animals, representing most genera, including mammals, birds, reptiles and insects, most of which are endemic[18] to the forest areas in the hills (Brooks *et al.* 2000).

[18] The Taita Hills form the northernmost part of the Eastern Arc Mountains, which constitute a centre of endemism. This includes 74 endemic vertebrates, 265 endemic invertebrates and 66 endemic trees (Brooks *et al.* 2000).

Simon and Brown described the wildlife of the lowlands briefly (Simon 1962; Brown 1965) while William (1967) compiled a checklist of the park mammals and birds. However, several species have been the subject of research. These include elephant (*e.g.* Glover and Sheldrick 1964; Law and Parker 1968; Corfield 1974; Leuthold 1976; Cobb 1976; IUCN 1978; Njogu 1997; Kasiki 1999), black rhinoceros (Goddard 1970), lesser kudu, giraffe, gerenuk and buffalo (Leuthold and Leuthold 1978) and birds of prey (Smelk 1974). Ayeni (1975) and Cobb (1976) described the abundance and distribution of large herbivores. However, a considerable change may since have taken place in abundance and distribution.

Apart from large herbivores and birds, there are very many other animals including several species of invertebrates that have been studied in the Tsavo area (Phillipson 1975). Anderson and Coe (1977) studied dung beetles and their effect on the removal of herbivore dung, while Buxton (1979) studied the contribution of termites to the removal of dead wood.

Flora

The vegetation mapping of the Tsavo ecosystem (van Wijngaarden and Engelen 1985) is described according to Braun-Blanquet's school of plant ecology (Muller-Dumbois and Ellenberg 1974). This method consists of clustering a list of species ('*releeve*') into groups (plant communities) which show a similar composition of species, based mainly on their presence or absence. At the same time, groups of species appear to have a similar distribution over the various communities.

The vegetation of the Tsavo area is strongly related to soil and climate. The majority of the vegetation types, which mainly occur in the lowlands, belong to communities dominated by *Commiphora* and *Acacia* species. Three major plant communities in the lowlands have been distinguished, as follows:

1. *Commiphora-Lannea* communities occur on well-drained and often acidic soils and include the following: the *Commiphora* species-*Premna holstii-Strychnos decussata* community, the *Commiphora* species-*Premna holstii-Bauhinea taitensis* community, the *Commiphora* species-*Boscia coriacea-Cordia gharaf* community and the *Commiphora* species-*Caesalpinea trothae-Schmidtia bulbosa* community. The characteristic species are *Lannea elata* and *Grewia bicolor*. When the structure is wooded bushland or denser, the tree layer is nearly always dominated by *Commiphora* species. Where the tree layer has been destroyed by man, fire or elephants, shrubs such as *Premna* species, *Bauhinea taitensis, Sericocomopsis pallida* become the dominant woody species. However, the tree species occur in the shrub or ground layer as saplings and stumps. Dominant grasses are *Cloris roxbarghina, Panicum maximum* and *Digitaria macroblephora*.
2. *Commiphora-Acacia* communities occur on well-drained to imperfectly drained non-acidic, non-saline soils and include the following: the *Commiphora* species-*Dobera glabra-Anisotis parvifolius* community, the *Commiphora* species-*Acacia ruficiens-Cadaba glandulosa* community and the *Commiphora* species-*Caesalpinea trothae-Cadaba glandulosa* community. When the tree layer is not destroyed, *Acacia* species usually dominate, accompanied by *commiphora* species, but *Cordia gharaf* or *Boscia coriacea* and various members of the Capparidaceae family may also dominate in the more open-structured vegetation of communities. The grass cover varies within these communities, but areas with dense cover are often dominated by *Tetrapogon bidetalus* and *Chrysopogon aucherii* perennial grasses.
3. *Acacia-Schoenefeldia* communities are found only on the poorly drained, alkaline or saline soils and include the *Acacia* species-*Schoenefeldia tranciens-Maerua* species and *Acacia* species-*Schoenefeldia tranciens -Enteropogon somalensis* communities. The structure is usually open,

scrub grassland or bushland with *Cadaba* species, *Grewia tennax* and *Acacia* species as the dominant species. Where dense bushland occurs it is usually dominated by *Acacia ruficiens*. The ground cover percentage is usually high and dominated by the medium to tall perennial grasses *Schoenefeldia tranciens* and *Sporobolus helvolus*.

4. Other communities cover 10-20% of the area and include *Combretum-zeyheri* communities occurring in the northwest on well-drained, rather acidic soil. The dominant species are several broad-leafed *Combretum* species. *Diospyros-manilkara* communities occur in the southwest on a wide range of soil conditions.

The vegetation of the lava flows and volcanic plains, the hill and mountain and the flood plains is undifferentiated because of very specific soil or/and climatic conditions (Muller-Dumbois and Ellenberg 1974). The top of the Taita hills was historically covered by dense forest described as the northernmost representative of the Eastern Arc Mountain forest (Beentje 1987: 23-66; Lovett 1993: 33-55; Mwangagi and Mwaura 1993; Wilder *et al.* 2000: 181-187). This forest has been cleared extensively for settlement and farming. Currently, only very few patches of natural forest exist. These patches include some large portions of Mbololo along a hillcrest, Sagalla and Kasigau. However, some of the main blocks of plantation forests also have a number of tiny remnants of the natural forest. We will discuss the Taita hills forest as a form of land use in Chapter 6.

Conclusions

Biodiversity is a broad term, generally covering all biological organisms, including those that serve as resources (goods and services). However, through increasing exploitation and the need for economic development, biodiversity loss has become a global problem. Basically, the loss is due to human population growth and increasing resource consumption; ignorance of species and ecosystems; poorly conceived policies; global trading systems; inequity of resource distribution; failure to account for the value of biodiversity; and a complex interaction of all these factors. To ameliorate the problem of biodiversity loss, various concerted conservation efforts at the global, national and local levels have been put in place.

In evolutionary terms, the conservation approach can be described as having undergone three phases: preservation, protection and conservation. These phases are appropriately described in two broad conservation paradigms: ‘protectionism’ and ‘conservationism’. Protectionism involves mainly protection and preservation, while conservationism – also regarded as ‘modern conservation’ – is broader, as it involves all the aspects of protectionism, but goes beyond protected areas. Currently, conservation is a much broader and more dynamic concept than originally defined. It embraces the concept of intelligent resource use aimed at meeting society’s short and long-term needs equitably, and it has become an issue in many social and natural sciences.

In the context of the current conservation approach at the global level, agreements have been made with the aim of ensuring conservation at the national and local levels. Among several other agreements in the field of biodiversity conservation, the Convention on Biological Diversity, which has now been ratified by some 180 governments, takes the lead. It calls for international cooperation in conserving biological diversity, using biological

resources in a sustainable manner and ensuring that the benefits arising from such use are equitably distributed. The countries that have ratified it are expected to ‘localise’ it by ensuring that all national laws are in line with its objectives and that mechanisms are put in place to ensure that biodiversity is conserved.

The main challenge to current conservation, particularly wildlife and forest biodiversity, is how to involve the local people in the areas beyond the protected areas. There have been several initiatives, all of which generally have been described as community-based approaches. However, these community-based conservation approaches have limitations. It is noted that their management frequently fails to perform as expected and the approach is more one of creating hope than of being a reality.

3

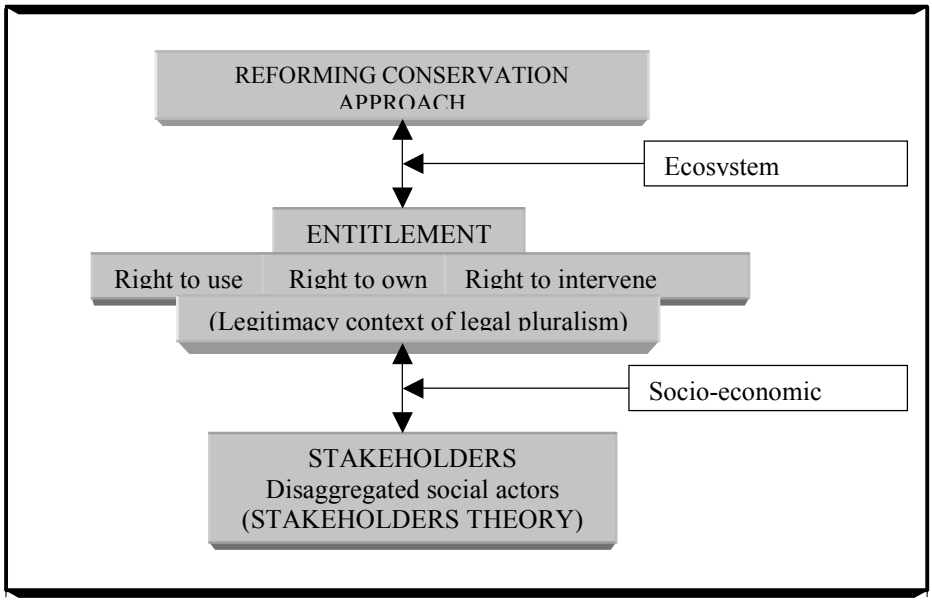
Theoretical issues in the current conservation approach

Community-based sustainable development has become a central approach to rural development and natural resource and biodiversity management in developing countries. But this emerging global consensus tends to overlook both ecological variability and the social differentiation and potential for conflict within local communities. These factors point to the importance of diverse local institutions for (i) managing environmental conditions and risks; (ii) influencing who has access to and control over resources; and (iii) arbitrating contested resource claims. This is the context against which we will discuss the theoretical issues in the modern conservation approach in this chapter. The modern approach is grounded on the historical tendencies of wildlife and forest biodiversity conservation and management. It narrows down the scope to the hurdles currently experienced in wildlife and forest management, which are linked to entitlement rights, stakeholders and interactions. Thus, the theoretical framework is centred around two key concepts: 'entitlement rights' and 'stakeholders'.

The historical tendencies are based on Regier *et al.* (1989) and Grima and Berke's (1989) views on 'reforming the use of natural resources'. The latter entails resource governance in the context of ownership of, and access to, resources with a view to accommodating the evolving wildlife and forest biodiversity conservation and management approach. After dwelling upon these views, we will introduce the concept of 'entitlement rights' as applied to environmental issues by Dietz (1996). The key elements of this concept are 'rights to own', 'rights to use' and 'rights to intervene in resource situations'. In general, the environmental entitlements framework offers a useful set of analytical tools for taking a more disaggregated approach to people-environment relations in community-based wildlife and forest conservation, and for untangling the complexity of institutional relationships. However, as a general approach, entitlements analysis is viewed as directing attention away from Malthusian assumptions by conceiving environmental problems in terms of resource access, use and control (Leach *et al.* 1997). The concept of 'stakeholders' as developed by several theorists in

various disciplines therefore becomes a handy tool for further analysis of entitlement structures. The concept of stakeholders seeks to identify who has what entitlement rights and who is affected or affects wildlife and forest biodiversity conservation, Byers (2000). These concepts – entitlement rights and stakeholders – seek to unveil the reasons for the increasing loss of wildlife and forest biodiversity and the intensifying conflicts. They imply that resource ownership, access by non-owners and intervention practices in resource situations are the crux of the matter. The theoretical approach narrows down to the conclusion that entitlement rights are the cornerstone of popular participation, conflict resolution and the core incentive for wildlife and biodiversity forest conservation. Figure 3.1 depicts a figurative linkage of these concepts.

Figure 3.1
Theoretical and conceptual framework



Reforming the wildlife and forest biodiversity conservation approach

> Curiously, wildlife conservation advocates have by and large not caught on the growing realisation and consensus which acknowledge that the success of the project and the only hope of sustainable resource use and sustainable development lies with popular participation. (Sibanda 1995: 9)

Reforming wildlife and forest management and conservation has its basis in the tenets and limitations of the common resource theory. Murphree (1991), Bromley (1992) and Sibanda (1995)[1] noted that the theory of the common resource and the argument of the 'tragedy of the commons' are not static. Sibanda (1995) observed that the CAMPFIRE programme has not

[1] The Tunga in Omay case study in Zimbabwe by Sibanda (1995) was aimed at evaluating the Communal Area Management Programme for Indigenous Resource Programme (CAMPFIRE), internationally one of the most eye-catching recent examples of a people-based conservation strategy.

done enough to apply some of the critical concepts of wildlife management, nor has it applied present knowledge to the common property theory. Murphree (1991 and 1994) argues that, if a resource is communally owned, it cannot suffer from the tragedy of the commons as argued by Hardin (1968), because the communal resource management regime controls its use.[2] Under the CAMPFIRE programme, the government of Zimbabwe granted 'appropriate authority' status to district councils over natural resources, particularly wildlife (Child 1995). Strictly speaking, therefore, the wards and villages (ordinary people in the village) do not own the wildlife; the district council does. In other words, wildlife is 'district common property'. The major shortcomings of the CAMPFIRE programme and similar community-based conservation attempts are the information gap and lack of involvement by the local inhabitants in decision-making. In this regard, the community-based programmes need to demonstrate in a practical sense what participation or involvement means for the ordinary person in the village and they must clarify the role of leaders in the whole setting.

As far as models of property rights and land use changes are concerned, Bromley (1991) distinguished four property rights and management regimes, the purpose of which is to manage people in their use of natural and environmental resources. The four types of regime considered are arranged along a spectrum of ownership:

1. Private property: Individuals have the right to undertake socially acceptable uses, and have a duty to refrain from socially unacceptable ones. Others (called "non-owners") have a duty to refrain from preventing socially acceptable uses, and have a right to expect that only socially acceptable uses will occur.
2. Common property: The management group (the "owners") has right to exclude non-members, and non-members have a duty to abide by exclusion. Individual members of the management group (the "co-owners") have both rights and duties with respect to use rates and maintenance of the object owned.
3. State property: Individuals have a duty to observe use/access rules determined by the controlling/managing agency. Agencies have the right to determine use/access rules.
4. Non-property: No defined group of users or "owners" and benefit stream is available to anyone. Individuals have both privilege and no right with respect to use rates and maintenance of the asset. The asset is an "open access resource".

On the basis of what is often referred to as 'the Bromley model of the property-right gradient', private property provides the greatest opportunities for the extraction of economic surplus, but involves the highest transaction costs. Common property is next in terms of both economic rent and transaction costs, followed by state property and open access. As a result, therefore, the gradient of property rights and economic rent will be socially efficient, with

[2] The argument owed much to Garrett Hardin's 'tragedy of the commons' (Hardin 1968), in which it was held that herdsmen would inevitably overgraze a common because each enjoyed the benefits of introducing an additional animal, while the costs were spread across all herdsmen. Hardin's argument subsequently attracted a great deal of criticism. Essentially, it was argued that Hardin had based his conclusion on a common that was an open access regime rather than a common property regime. The former was prone to the tragedy predicted by Hardin, but the latter could be grazed sustainably because common property institutions limited the use by commoners and excluded use by outsiders. Many of the instances of overgrazed 'commons' in developing countries were shown to have been the consequence of the collapse of indigenous institutions in the face of colonialism or government-sponsored privatisation, rather than the consequence of the nature of the resource or its common property institutions.

land that would generate the highest rent as private property, land that can generate the next highest level of rent as common property, followed by state property and open access for land that would generate lower levels of economic rents. This model predicts property rights change, with resources gradually moving from open access, to state property, to common property and, ultimately, to private property as population growth and increased commercialisation lead to increases in the scarcity of the land. This observation is further strengthened by Demsetz (1967) and Posner (1977), who argue that society will define and enforce more exclusive and secure rights when the benefit exceeds the cost. In this regard, changes in scarcities of production inputs and market opportunities change people's perception of the merits of different property rights. In contemporary Africa, as we have also demonstrated in the case of Taita in this paper, the general trend is towards more individualised property rights (Platteau 1996).

Institutionally, Anderson and Hill (1975) recognised that costs are associated with institutional changes. Thus, property-rights institutions gradually change in response to change in the marginal benefit and marginal costs associated with the definition and enforcement of property rights. Further, Howitt (1995) argued that change in property rights occurs in discrete jumps because of the lumpy and irreversible nature of reforms in property rights and uncertainty over benefits arising from many natural resources. Hayami and Ruttan (1984), and Feeny (1988) developed a model of "induced institutional innovation" that pays more attention to factors affecting the supply of institutional innovation. They note that efficient institutions may not be forthcoming for two reasons: the overall national interest departs from the economic interest, as in the case for wildlife and forest conservation in Kenya, or the interests of the elite government officials diverge from the economic interest of the society. Other scholars have shown that economic gains are neither a necessary nor sufficient condition for the implementation of alternative property rights arrangements (Libecap, 1989; North, 1990; Eggertsson, 1990). Instead, distributional conflicts, transaction costs and political intervention are crucial determinants of the path of institutional change. Eggertsson (1990) dubs Demzsetz' view as the naive model of property rights, since it articulates decision-making solely in terms of private costs and benefits and fails to explicitly model the influences of social and political institutions in changing property rights. Similarly, North (1990) argues that institutions are not always created to be socially efficient and may sometimes be created to serve special interests, particularly those with the bargaining power to devise new rules. The effects of increasing privatisation on both land productivity and natural resource conservation do not unequivocally follow predictions made by researchers. Many studies indicate that the shift of property rights towards increasing privatisation is not as optimistic as predicted by the early property rights theorists. Our study in Taita, which is based on the arguments of Regier, Mason and Berkes (1989), "reforming the use of natural resources" and the concept of entitlement, contradicts the notions of efficiency and natural resource conservation implied by these models of property rights and land use change. Nonetheless, some transformations provide powerful support for the theory of property rights as elaborated by North and Thomas (1973) and Demsetz (1967).

Under natural resource management regimes, full exercise of private property rights is considered as being virtually impossible in an ecosystem context. Air, water and organic substances and biota simply cannot be prevented from moving onto, off or across one's

property, as is the case with roaming wild animals. Ecological 'neighbours', some as far as a thousand kilometres away, adversely affect what is ostensibly private property in some locale. Therefore, the more intense and/or numerous such adverse systemic interconnections, the less complete will be the package of property rights in practice, if not in theory. Thus, the 'dimensionality' of the domain of private property/closed access shrinks with ecosystem degradation. At the same time, the class of phenomena that may be construed as entirely ownerless is shrinking rapidly and may soon become non-existent throughout the biosphere. In this perspective, felons and poachers who make illegal use of others' property are subject to punishment and/or payment of restitution when apprehended. Because of the interconnectedness of features within an ecosystem, which is dynamic in nature, it would be unusual for unlawful use to leave the resource unaffected.[3] It might happen that some extra-legal use would benefit an owner's practical interest in the property, but the opposite is usually the case. The intensity and ubiquity of control by centralised bureaucracies is also waning. Party, plutocracy[4] and state capitalism operating under the guise of socialism are gradually being reformed. In the same vein, closed monastic and idealistic communities are now less common than was once the case. In this context, humanity's complexity and ecosystem processes, coupled with the expanding and intensifying impact of humans on ecosystems, reduce the incidence of 'regimes' that fall towards the edge of the matrix in Figure 3.2a (which shows administrative and governance regimes according to dominant norms governing ownership and access to natural phenomena).[5]

In terms of resource ownership and access, this 'reform the use of natural resources' approach identifies five dominant types of social mechanisms used in allocative decisions, including *laissez-faire*, administrative regulation, organised bargaining, community self-regulation and free market. These social mechanisms can be distributed conveniently over all the ownership-by-access domains (Figure 3.2b). However, these are viewed in a systemic and relativistic way, with a primary type being complemented in practice by a secondary and perhaps a tertiary type. For instance, if community self-regulation is the dominant mechanism, a free market may exist for the allocation of some other resources. Clearly, this implies coexistence and interaction between various actors in the context of multiple legal orders (legal pluralism) such as state, customary, religious, project and local laws, all of which provide bases for claiming entitlement rights. This complicates the management of an ecosystem, hence the need to understand who is interested in what resource in space and time.

Generally, this approach observes that the currently thriving regime tends to cluster around the diagonal in favour of community self-regulation, which is complimented by other forms of management. This can be seen in Figure 3.2c, which illustrates the general loci or domains within which natural resources can be managed with the aim of resolving resource conflict. These tend to involve a number of stakeholders.

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[3] Illegal hunting and collection of plants generally result in the decimation of some species. Poaching for rhinoceros horn and elephant tusk has adversely reduced the numbers of the respective species.

[4] Party plutocracy, generally refers to the rule of wealth.

[5] The terms autarchy, plutocracy and anarchy here relate primarily to property rights and not necessarily to all the phenomena over which authority may be exercised. Property here relates to renewable living resources and the natural environment and, especially the living, but non-human, part of the environment.

Figure 3.2a
Reforming the use of natural resources

Ownerless	Non-legal autarchy, squatters	Protectorate, imperialistic or through UN decision	Free anarchy, explorers of uninhabited areas
State owned	Party plutocracy, state capitalism	Democratic socialism and communism	None known
Community owned	Monastic and idealistic communal movements	Tribal traditions, communitarian groups	None known
Privately owned	Aristocratic autarchy democracy	Liberal capitalistic	Illegal anarchy poachers
	Closed access	*Limited access*	*Open access*

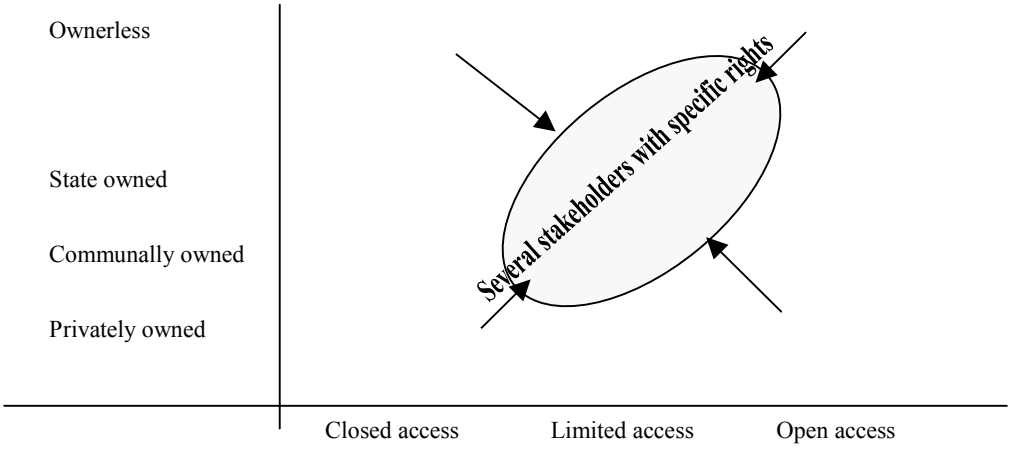
Modified from Regier, Mason and Berkes (1989).

Figure 3.2b
Reforming the use of natural resources - I

Ownerless	Legal action		*Laissez-faire*
State owned		Administrative regulation	
		Organised bargain	
Communally owned	Community self-regulation		
	Free market		Legal action
Privately owned			
	Closed access	*Limited access*	*Open access*

Modified from Regier, Mason and Berkes (1989).

Figure 3.2c
Reforming the use of natural resources - II



The most critical issues that can be raised here relate to *allocative disorder* (resource allocation) as in the *tragedy of the commons*, such as poaching or illegal land transfers. Three main issues can be raised here: pseudo-open access conditions and a demand greater than the usual sustainable harvesting level; poorly defined use rights; and a breakdown in the system of enforcement of either limits to access or the right to use. These allocative disorders raise the question of who has the right to own, use and intervene and how the stakeholders interact with respect to the specific resources. These are addressed by the concept of entitlement and the theory of stakeholders

Entitlement rights

In the 1990s there was a dramatic expansion in the language of 'rights' or entitlements in negotiations between individuals and social groups, on the one hand, and nation states or supra-national bodies, on the other. Processes of globalisation have led to rights discourses being widely adopted by local social actors across the world and rights talk has transformed the parameters of discourse in new domains of political struggle, such as ecological rights (Wilson and Mitchell 2001).[6]

However, under the circumstances of *allocative disorder*, the views of Regier, Mason, Berkes and Grima (1989) and Grima and Berkes (1989) on 'reforming the use of natural resource' and the entitlement rights as discussed by Dietz (1996), become critical. Dietz defines entitlement rights as including the right to own and use resources and to intervene in resources situations. According to Dietz, these rights are dynamic and not exclusive. This view is shared with Singer (2000), who argues against the conventional understanding that owners have the right to control their property as they see fit, with few limitations by the government. Instead, 'property should be understood as a mode of organising social relations' (Singer 2000: 257). Singer's views are based on social relationships, contending that property is a matter not of right, but of entitlement, where entitlement is a complex accommodation of mutual claims in the context of legal pluralism. Property requires regulation, as it is a system and not just an individual entitlement. As a system, it must support a form of social life that

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[6] At a conference on Anthropological Perspectives on Rights, Claims and Entitlements at the University of Sussex held from 30 March till 2 April 2001, conference organisers Richard Wilson and Jon Mitchell of the University of Sussex argued that the hegemonic status of the model of rights has had complex and contradictory implications for groups who articulate their claims in these terms. Notions of rights and entitlement have become a key site of contestation and reinterpretation of meanings and are not adopted or resisted (or just ignored) in a uniform manner. This gives rises to such questions as: How are political claims transformed through their interaction with the technocratic consciousness and legal rationalities of state or international bureaucracies? Has the neo-liberal language of individual and choice replaced more social science-informed notions of 'personhood' and 'agency'? How do social movements seek to alter the direction of social change through their rhetorical invocations of civil society, citizenship, or human rights? What are the unintended consequences of articulating claims which previously may have had a more politically ideological tone in the technical and legalist language of rights and entitlements? How are more established political identities (such as social class) refashioned, and by what processes have more recent identities — such as indigenous peoples — emerged alongside reformulations of 'group rights' or 'minority rights'? These and other questions were addressed at the above conference.
(http://www.sussex.ac.uk/Units/anthrop/asa2001/ July 2002)

spreads wealth, promotes liberty, avoids undue concentration of power and furthers justice. Singer further argues that owners have not only rights but also obligations to other owners, to non-owners and to the community as a whole, all of whom constitute stakeholders. Those obligations ensure that property rights function to shape social relationships in ways that are both just and defensible. These views are also shared with proponents of the 'stakeholder theory' in corporate management, which we will discuss in a later section when dealing with community-based conservation.

For the purpose of entitlement analysis, the contention at this juncture is that wildlife and forest biodiversity conservation and management are a subject of 'which, what, who and where in time'. The issues of people-wildlife and forest biodiversity interaction and of people-people interaction in the context of these resources are critical and may be viewed as part of the ecosystem. In short, the question is 'which' social actors see 'what' component of biological resources and dynamic ecologies as a resource in 'space' and 'time' and how is a specific social actor perceived by others with respect to the specific resource? How different social actors gain access and control over such resources constitutes entitlement analysis.[7] Several authors have tried to evolve Sen's (1981) view of entitlement (Gore 1993; Gasper 1993; Jenkins 1997; Leach *et al.* 1997). Sen's entitlement concept does not refer to people's rights in a normative way of what people *should* have, but refers to the range of possibilities that people *can* have. This is a 'set of alternative commodity bundles that a person can command in the society using the totality of rights and opportunities with which he or she is presented (Sen 1984: 497). A further argument by Sen is that entitlements arise through a process of 'mapping' endowments, defined as a person's 'initial ownership'. Land or labour power, for instance, are transformed into a set of entitlements. This relates to how different people derive entitlements from their endowment (Leach *et al.* 1999).

The evolved view of entitlements covers the whole range of socially sanctioned as well as formal legal institutional mechanisms for gaining resource access and control (Gore 1993). Leach *et al.* (1999), adopt the following definitions of key terms. First, endowment refers to the rights and resources that social actors possess, such as land, labour and skills. Secondly, entitlement refers to legitimate effective command over alternative commodity bundles (Gasper 1993). To be more specific (Leach *et al.* 1999: 233), 'environmental entitlement' refers to an alternative set of utilities derived from environmental goods and services over which social actors have legitimate effective command and which are instrumental in achieving wellbeing. The alternative set of utilities that comprise environmental entitlement may include direct use in the form of commodities, such as food, water or fuel; the market value of such resources and the utilities derived from environmental services. According to Leach *et al.* (1999), entitlement, in turn, enhances people's capabilities, which are what people can do or become with their entitlements. For example, command over fuel wood resources derived from rights over trees gives warmth or the ability to cook, thus contributing to well being.

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[7] 'Entitlements analysis', was first developed by Amartya Sen to explain how it is that people can starve in the midst of food plenty as a result of a collapse in their means of command over food (Sen 1981). Undue emphasis on aggregate food availability, Sen argues, diverts attention from the more fundamental issue of how particular individuals and groups of people gain access to and control over food. Thus 'scarcity is the characteristic of people not having enough ... it is not the characteristic of there not being enough. While the latter can be the cause of the former, it is one of many causes' (Sen 1981: 1).

In relation to entitlements, there are many ways of gaining access to and control over resources, such as market and kin networks. There are, furthermore, many ways of legitimising such access and control, not only through the formal legal system, but also through customary law, social conventions and norms. The nature and 'rules' of each political and economic system produce a set of entitlement relations or structures, governing who can have what in that system. The nature of entitlement of a person would thus depend on the legal, political, economic and social conditions in society and the person's position in it. Entitlement is therefore a matter of both rights and/or power, and is concerned with the actual process of how people gain access to resources. Resources, however, are limited and the distribution of these resources can be understood as the outcome of a process of negotiation and/or contestation between social actors with different priorities and interests (Verstegen 2001: 12). Entitlement analysis therefore involves the identification of the main sources of entitlement of various groups who are considered as stakeholders.

Having defined the range of resource management regimes and their dominant types of social mechanisms used in allocative decisions (including *laissez-faire*, administrative regulation, organised bargaining, community self-regulation and the free market), we contend that there is no single regime capable of achieving sustainable development in all contexts. The problems of resource degradation and excessive depletion may persist under any property regime. Research indicates that sustaining environmental resources is not dependent on a specific structure of property regime (Hanna, Folke, and Maler 1995). Instead, a properly defined set of property rights congruent with environmental, social, political, and economic conditions is necessary. Moreover, appropriate institutions - property rights arrangements - are a necessary, but not sufficient, condition for resource sustainability (Ciriacy-Wantrup 1967).

Failure to design property rights regimes that are context specific, which are incompletely defined, insecure, and inflexible to changing social, economic, and environmental conditions are likely to result in unsustainable resource use. Moreover, failure in any of these dimensions could result in resource management regimes that are not socially desirable, both from an efficiency and equity perspective. In developing nations, population growth, changing technologies and an increasing intensity of resource use through commercialisation may place demands on resources which exceed the ability of current regimes to allocate entitlement and regulate use. This may be further complicated by political and/or organisational challenges to institutional change necessary to rectify colonial and post-independence problems prevalent in current systems of resource management.

The breakdown of institutional structures and negative environmental changes lead to conflicts, particularly in developing countries (Okidi 1994). Thomas Homer-Dixon's view that negative environmental changes lead to conflict is contested on the basis that the argument focuses mainly on aggregate population size and density, and homogenises diverse regions with their own unique histories and cultures. Fairhead (2000) and Salih (2002) claim that Homer-Dixion's conceptualisation of environmental scarcity is deeply misleading and confuses distinct environmental variables. They caution against the casual ascription of conflict to environmental factors. They argue that the concept of entitlement is hinged on environmental and cultural heterogeneity and complexity.

Effective institutional design is preconditional on an appropriate institutional setting; specifically, there must be channels for local level participation in decision-making on allocation and rules for use of resources. An inherent component of sustainable development is open consultation with, and full participation of, stakeholders. Indeed, if local units are included in the effort to set rules and regulations, access and use of resources can be matched effectively to local environmental conditions (Ostrom 1990). Forums for local input are also needed to ensure that traditional users, particularly women, do not become marginalised. Further, the full participation of local communities requires them to have access to information and to possess the capability to use such information. Finally, as people engage in dialogue about institutions and resource use, mechanisms for conflict resolution will be necessary to deal with divergent interests. The challenge, as Ostrom (1995, p.41) points out, is "developing institutional arrangements at multiple levels that enhance the likelihood that individual incentives lead participants toward sustainable use of resources rather than imprudent uses".

The stakeholders in wildlife and forest biodiversity conservation

It is clear that the concept of entitlement in the context of the 'reformed conservation and management of wildlife and forest biodiversity' is incomplete without a clear view of who the actors are. Indeed, quite often in matters of resource management and, particularly, wildlife and forest biodiversity management in the context of community-based conservation answers to questions such as who (or what) is a 'stakeholder'[8] leave a lot to be desired. Moreover, although this concept is widely used and the term stakeholders is popular, there is little consensus on who (or what) are the stakeholders and to whom (or what) managers need to pay attention (Mitchell *et al.* 1997). However, the concept of stakeholders in wildlife and forest biodiversity conservation is still being expounded. Various interest groups have been mentioned in the past (Omondi 1994; Bonner 1993; McNeely 1989; Abel and Blaikie, 1986; Yeager and Miller 1986), but little seems to have been done in identifying stakeholders, not even in the contexts of entitlement rights. However, in fishery, which is a component of biodiversity, stakeholder theory has been employed to analyse who stakeholders are (Mikalsen and Jentoft 2001). Mikalsen and Jentoft, (2001: 281-292) argue that the concept of 'co-management' has by and large become synonymous with various forms of user-group participation, but has been based on a rather narrow conception of 'interest' and 'parties affected' in that inclusion and participation are largely confined to user groups proper. Indeed, as Byers (2000) argues, a successful conservation strategy requires the integration of values and interests of a range of human stakeholders and actors – not to mention the non-human stakeholders.[9] Among the humans, this goes well beyond the user group proper to those who enjoy ecosystem services knowingly or unknowingly. These people, although they may occupy the same ecosystem or conservation area, vary widely in political and economic

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[8] Kenya Wildlife Service (1996) defines stakeholders as private individuals or groups having a vested interest in the conservation issues relating to a particular area. The word 'stakeholder' was first recorded in 1708 as 'a person who holds the stake or stakes in a bet'.

[9] This is a view of deep ecology (http://www.deep-ecology.org/ 13 June 2002).

power, options and level of interest in a place and its resources. The fact that there are multiple interests and stakeholders in wildlife and forest conservation and that they range from local people to distant outsiders cannot be ignored. Even the conservationists and researchers are not neutral third parties.

Students of business administration and corporate management originally coined the stakeholder theory. They defined stakeholders as '...any group or individual who can affect or is affected by the achievement of the firm's objective' (Freeman 1984: 25, 46; Freeman 1999). In this context, the concept pertains to extending the scope of managerial attention beyond the interests of owners, managers or stockholders. For a business to thrive, management has to attend to the concerns and needs of other stakeholder groups, notably those of suppliers, employees, local communities, government and customers (Donaldson 1995: 69). Taking into account the fact that managers have a limited attention span and that they simply cannot attend to everything, other scholars have tried to narrow down the definition (Mikalsen and Jentoft 2001). Mitchell *et al.* (1997: 858) provides a comprehensive and chronological list of definitions. Some of the more narrow definitions simply refer to stakeholder groups in terms of their direct relevance to the firm's core economic interests and perceive stakeholders as those groups or individuals whose support is needed for organisational prosperity and survival. However, according to Mitchell *et al.* (1997: 858), stakeholder theory has two core issues. The first is stakeholder identification: who has a legitimate claim on the attention of the managers? Secondly, there is the question of stakeholder salience: who actually consider themselves to be stakeholders, having their claims and demanding attention by the management?

In this context, not all stakeholders are equal. Clarkson (1995: 106-107) made a division into two groups, primary and secondary stakeholders. In this division, a primary stakeholder is '...one without whose continuing participation the corporation cannot survive as a going concern'. Examples are shareholders, investors, employees, customers and suppliers. According to Clarkson (1995: 106-107), a corporation or an organisation can be defined as a system of primary stakeholders – a complex set of relationships between and among interest groups with different rights, objectives, expectations and responsibilities (Mikalsen and Jentoft 2001: 283). Secondary stakeholders are defined as '...those who influence or affect, or are influenced or affected by the corporation, but they are not engaged in transactions with the corporation and are not essential for its survival'. Examples include the media and a wide range of special interest groups. The corporation is not dependent on these groups for its survival, but they may affect the organisation's performance by interfering in the smooth operation of the business.

Basing themselves on the diversity of stakeholders, Mitchell *et al.* (1997) have developed a classification based on the 'score' of prospective stakeholders on three attributes: legitimacy, power and urgency (Figure 3.3). On these attributes, stakeholders are differentiated as groups that have a legal or moral claim on the firm (legitimacy), groups that are in position to influence the firm's decision (power) and groups whose claims demand immediate attention from managers (urgency). To be a stakeholder, therefore, one has either to have a legitimate and perhaps urgent claim on the firm or be able to wield power over the firm's decisions (Mikalsen and Jentoft 2001: 283). Based on the stakeholders' scores on these attributes, Mitchell *et al.*, further divided stakeholders into three groups: definitive stakeholders,

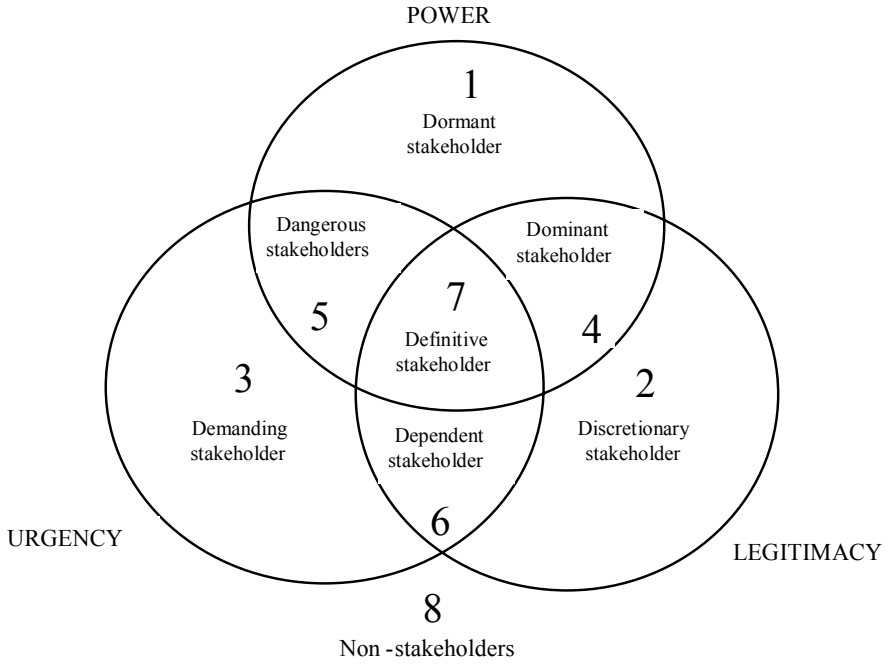
expectant stakeholders and latent stakeholders. Definitive stakeholders (Area 7) refer to '…those who possess power, legitimacy and urgency [and] have an unequivocal claim on the attention of the firm', *i.e.* groups or individuals such as shareholders, employees and customers, whose demand and needs must be attended to by the managers in order for the firm to survive. These are the most salient stakeholders.

Expectant stakeholders are those who possess two of the three attributes and these can be classified further into three classes, *i.e.* dominant, dependent and dangerous. Expectant stakeholders can become definitive stakeholders by acquiring the missing attribute (Mitchell *et al.* 1997: 303-304). Groups and organisations that are both legitimate and powerful, such as investors, employees and government agencies, will expect and receive managerial attention and, in some cases, enjoy some form of formal representation or participation in decision-making. These groups of expectant stakeholders are classified as dominant (Area 4).

Another type of expectant stakeholders are those with legitimate and urgent claims on the firm, but without power to enforce them. These are dependent stakeholders (Area 6). In this case, attention and access depend on advocacy by stakeholders who are more powerful or on managerial benevolence. According to Mikalsen and Jentoft (2001), in order to be 'heard', building alliances, engaging in political action and appealing to the values and conscience of management stand out as relevant strategies. The possession of urgency and power paired with absence of legitimacy makes some stakeholders literally dangerous to the firm. This group of dangerous stakeholders (Area 5) tends to use force in advancing their claims. They may include dissatisfied employees, civilly disobedient and illegally acting environmental groups and, at the most extreme, political or religious extremists engaged in terrorist activities. Latent stakeholders are those possessing only one of the three attributes and can further be classified into three classes, namely dormant, discretionary and demanding stakeholders. Those with power to influence, but without legitimacy and urgent demands, will be stakeholders to the extent that they are willing or able to use their power. In this case, the stakeholder status is 'dormant' and must be activated by actual use of power or a threat to do so. These are referred to as dormant stakeholders (Area 1). Groups or individuals with legitimate claims, but with no power or demands that require urgent attention will be 'heard' at the discretion of the firm and are classified as discretionary stakeholders (Area 2). Groups or individuals with urgent demands, but without legitimacy and power are mainly considered as troublesome, are not dangerous and do not warrant more than passing management attention and are classified as demanding stakeholders (Area 3).

According to Mikalsen and Jentoft (2001: 284), this model based on the typology of Mitchell *et al.* is dynamic, as any group or organisation can acquire one or more additional attributes at any given time, thus moving from one category to another. However, according to Mitchell *et al.*, the essence of the argument is twofold. First, the legitimacy of the claim is not the only reason why management must pay attention or why a particular group qualifies as a stakeholder. Secondly, a group's stakeholder status, its legitimacy and attention-getting capacity are not fixed properties. A group may become more salient to the firm because of political mobilisation and successful alliance building, or because of social and economic changes. Clearly, these views are shared in the concept of entitlement, as Dietz (1996) notes that entitlement rights are dynamic and not exclusive.

Figure 3.3
The stakeholder identification model



Source: Mitchell, Bradley and Donna (1997).

In wildlife and forest biodiversity conservation, as noted in the preceding chapters, the concept of stakeholder has only recently been evoked for application in community-based conservation and co-management efforts. However, the use of the stakeholder concept and stakeholder identification has no strong theoretical basis. Borrini-Feyerabend (1996: 5) has developed a checklist of 'social actors potentially stakeholders in protected area management for biodiversity conservation' and defines stakeholders '...as to include various institutions, social groups and individuals who possess a direct, significant and specific stake in the protected areas'. The stake may originate from institutional mandate, geographical proximity, historical association, dependence for livelihood, economic interest and a variety of other capacities and concerns (Borrini-Feyerabend 1996: 6). Borrini-Feyerabend further attempts to set criteria for identifying stakeholders. There are three aspects of identification. First, stakeholders are aware of their interest. Secondly, stakeholders possess specific capacities (*e.g.* knowledge, skill or expertise) and/or comparative advantages (such as proximity or mandate). Thirdly, stakeholders are willing to invest specific resources (such as time, money and/or political authority). A further argument is that not all stakeholders are equally interested in conserving a resource, nor are they equally entitled to have a role in resource management. Social actors who score high on several accounts may be considered 'primary stakeholders' and those who score high on one or two accounts 'secondary stakeholders'. In collaborative management processes, primary stakeholders would assume an active role such as decision-making (e.g. holding a seat on the management board) while secondary stakeholders would be involved in less important ways (such as holding a seat in a consultative body). The accounts

for drawing these criteria form what Borrini-Feyerabend refers to as 'possible criteria to distinguish among stakeholders' and include the following:

- Existing rights to land or natural resources;
- Continuity of relationship (*e.g.* residents versus visitors and tourists);
- Unique knowledge and skill for the management of the resource at stake;
- Losses and damage incurred in the management process;
- Historical and cultural relation with resources at stake;
- Degree of effort and interest in management;
- Equity in access to the resources and the distribution of benefits from their use;
- Compatibility of the stakeholder's interest and activities with national conservation and development policies;
- Present or potential impact of the activities of the stakeholder on the resource base.

Borrini-Feyerabend also attempts to conceptualise representations of groups and associations of stakeholders (*e.g.* the district council, as in the case of CAMPFIRE, the village council, a fishermen's society and a local chapter of a union of indigenous people). She identifies three forms of representation. These include, first, self-representation where people represent themselves face-to-face and personally express their opinion, discuss, vote, work, offer a material contribution and/or receive a benefit. Secondly, direct representation where people delegate others such as relatives, friends and leaders of CBOs or respected members of the community to represent them in all sorts of activities, and maintain a direct, face-to-face relationship with their representative. The third is indirect representation, where people delegate others such as experts, appointees of large associations, NGOs, parties or government officials to represent them in all sorts of activities, but rarely, if ever, interact with their representatives on a person-to-person basis. The argument for representation is that it is crucial to assure the participation of stakeholders who do not enjoy a high social status.

Furthermore, Borrini-Feyerabend highlights the relationship between agencies in charge of protected areas and their stakeholders. She has developed no criteria for analysing relationships, but contends that the relationship is not as good as would be desired; that the agency in charge often sees the local community primarily as a potential threat to the protected areas. In the context of relationships between stakeholders, several authors have put forward an alternative approach to stakeholder theory (Wicks *et al.* 1994; Dobson and White 1995; Burton and Dunn 1996). This approach emphasises a 'caring approach' to stakeholders and considers relationships an essential part of the firm, opposed to being contractual. This proposal for dealing with local groups may seem radical, but is a logical outgrowth of an emerging school of thought which regards stakeholder theory as a practice of truly caring management (Dunn 1996: 8). This is also the case with local communities. Certainly, negotiation is neither possible nor desirable for powerless groups. Weak, disenfranchised stakeholders stand to lose much from negotiations where power differences are too acute to enable collaboration (Ramirez 1999).

In the context of community-based conservation, local communities are considered as stakeholders. However, the definition is a tricky one. Dunn (1996: 3) argues that an ambiguous reference to 'community' or 'general public' does not hold in discussions of stakeholders. In particular, the argument is that communities are composed of many different individuals and many different groups and that they are not homogenous. Moreover, communities cannot be treated as static, undifferentiated wholes, since they are composed of active people and

groups. As Berkes (2003 p8) puts it, "the term *community* in community-based conservation, is gloss for a complex phenomenon, as social systems are multi-scale and the term, community, hides a great deal of complexity. The behaviour of social actors is not driven automatically and unconsciously by structures, rather they actively monitor, interpret and shape the world around them (Long and van der Ploeg 1994). Therefore, individuals and groups within a community need to be separated from one another. However, this increases the complexity of resource management in the context of the stakeholder theory.

In the argument of stakeholders in wildlife and forest biodiversity conservation, a division between the public and private sector is clear and inevitable. Theoretically, there seem to be 'superior stakeholders' in charge of coordination. Certainly, the government agencies with legal jurisdiction over wildlife and forest or the overall environmental or biodiversity management will play the coordination role. Moreover, the government is ideally the guarantor of social contracts. In the context of the state-public divide, Emanuel de Kadt (1997) uses the term 'stakeholder synergy'. The use of this term hinges mainly on the structural adjustment and concomitant 'shrinking of the state' in favour of the 'value-added' cooperation between the public and private sectors. However, Dietz (1996) notes that development researchers should not be trapped conceptually in the old dichotomy of the state versus non-state. Dietz (1996) further argues that '…in many local situations there is a large and growing grey area of institutional arrangements regarding resource interventions between state and non-state actors'.

In stakeholder theory, the concept of stakeholder synergy is important for the delineation of the coordination of community-based conservation initiatives. In this context, Evans (1996a and 1996b) discusses the scope of 'synergy' as including effectiveness, produced when public and private actors complement each other or actually work together on the same task.[10] The term synergy is reserved for those types of public-private cooperation which are in some sense 'exclusionary' and which do not operate with an explicit aim of excluding certain categories of people. According to De Kadt (1997: 7):

> …the simplest form of synergy is where there exist complementarities or division of labour between public and private actions. Such complementarities also involve the state in providing the institutional, regulatory or legal framework, a rule-governed environment including above all the rule of law – in which local organisations can operate effectively: the state provides the necessary ambience.

However, it is noteworthy that, even if the state has to provide the necessary institutional, regulatory and legal frameworks, the stakeholders ought to participate in developing them. It is clear that the change in the institutional, regulatory and legal framework has not been concordant with the evolution of the wildlife and forest management approach. Nevertheless, the term synergy simply looks at consensus-creating mechanisms and requires mutually accepted and recognised rules of the game. This concept links with the idea of 'intervention practices' in the broader concept of entitlement. It also tallies with the argument of 'give-and-take systems' of integrated wildlife management (Omondi 1994) and may be extended to

[10] Evans (1996a, 1996b) linked his discussion of synergy with that of 'social capital' – a concept used extensively by Robert Putnam (1993) who refers particularly to James Coleman (1990), who in turn attributes the origin of the concept to Genn Loury (1977).

advocate for ‘stakeholder-stakeholder’ cooperation. This would ensure an ‘all-win’ situation as argued in the realms of multi-stakeholder processes (Hemmanti *et al.* 2002).

The concept of community-based conservation and incentives

Although most of the protected areas on earth are justified by their ecological uniqueness, the role of human activities in the protected natural ecosystems has never received adequate consideration. Nevertheless, research shows that human impact can be a positive as well as a negative ecological force, depending on the type and level of disturbance (Wamalwa 1991; Western 1993). It is clear that increasing human activities around park boundaries have a capacity to depress the wildlife population. Firstly, by competing with wildlife, either directly for space or indirectly for resources that are used by domestic stock and human population and secondly, by direct exploitation, particularly through illegal hunting and cutting vegetation. On the other hand, wildlife has negative effects on humans. These may include damage to property, crops and livestock and sometimes cause human death or bodily injuries, spread of diseases to domestic stock and competition for pasture and water.

Biodiversity-related conflicts such as wildlife-human conflicts have in the past received considerable attention. Among other reasons, various projects, including community-based conservation attempts, were initiated in efforts to resolve wildlife-human conflicts. Concerns are currently focussed not only on resolving human-wildlife conflicts and on the conservation of biodiversity, but also on social and economic development. Omondi (1994) summarised the nature, causes and consequences of human-wildlife conflict. However, not much has been done on legitimating resource use, Dietz and Rutten (1989), in an attempt to define resource-based conflict, did discuss this aspect. Dietz (1996) further narrowed down this argument in the concept of entitlement. This concept, in addition to resource legitimation, also appraised the right to intervene in a resource situation as a stakeholder. The concept of entitlement therefore becomes cardinal in situations where several competing stakeholders are involved, as is the case with wildlife and forest biodiversity management. In this context, the position of this thesis is that community-based conservation and other related conservation initiatives must be based on clear entitlement rights if basic incentives for ‘give-and-take-systems’ are to operate as visualised by Omondi (1994) in the concept of integrated biodiversity management.

Incentive programmes have been around for hundreds, if not thousands, of years, particularly for employees of firms and government agencies. They started with the club, progressed to the whip and have been becoming increasingly more sophisticated since the abolition of slavery. Over the last 30 years, a highly sophisticated industry has developed from research by behavioural psychologists and management science gurus on how to motivate employees to increase productivity and, hence, profit. The problem is that the motivation industry or, as it is called in the trade, the ‘incentive’ industry, focuses almost exclusively on the corporate business sector.

The concept of incentives in environmental conservation and, particularly, wildlife and forest biodiversity conservation, is relatively new. Since the biodiversity conservation approach has mostly remained exclusionary and local communities are suffering wildlife and

forest-related conflicts, incentive measures have been advocated to promote their participation in conservation. In some cases, incentives were advocated with the presumed goal of softening their local communities' antipathy towards conservation. In the last decade, this concept has been advanced with an emphasis on economic incentives (Emerton 1999). The Convention on Biological Diversity (1992), Article 11, on incentive measures, states that

> … each Contracting Party shall, as far as possible and appropriate, adopt economically and socially sound measures that act as incentives for the conservation and sustainable use of components of biological diversity.

The definition of incentive in the context of wildlife and forest biodiversity conservation is ambiguous. However, it is commonly defined as specific inducements designed and implemented to influence or motivate people to act in a certain way. The concept of 'incentive measures' is defined as any inducement which is specifically intended to incite or motivate governments, local people and international organisations to conserve biological diversity. Incentives are used to divert resources such as land, capital and labour towards conserving biological resources and to facilitate the participation of certain groups or agents in work which will benefit these resources (McNeely 1988).

This concept has been integrated into Agenda 21 and, more pertinently, into the CBD. Following the deliberation of parties to the CBD on the topic, 'Sharing of Experiences on Incentive Measures for Conservation and Sustainable Use (UNEP/CBD/COP/3/24), a social dimension was incorporated into the CBD. In this way,

> … incentives are the opportunities and constraints that influence the behaviour of individuals and organisations in a society. Incentives for biodiversity management are derived from a complex interaction of society's laws, policies, property rights, social conventions, cultural norms, and level of compliance. The decision of individuals and organisations with regard to biodiversity and its components are outcome of the multi-faceted and unique environment of each society. Incentives derive from a wide range of societal factors, not from any single measure. (IUCN 1999: 2)

Therefore, an incentive for conservation is any inducement which is specifically intended to incite or motivate stakeholders to play a positive role in the conservation of biological diversity. These may include all 'interests' interacting directly or indirectly with a specific biological resource and it may range from individuals to institutions and their interests. The antonym of incentive is disincentive and is any inducement or mechanism designed to discourage negative interaction with biological diversity, which would lead to loss of biological diversity. Together, incentives and disincentives provide the stimuli that will conserve wildlife and forest resources. Under certain conditions of uncertainty, incentives may fail to induce expected stimuli and act as disincentives. This is regarded as a perverse incentive.

Incentives are twofold, direct and indirect, and can be applied at the local, national and international levels. Direct incentives may be either in cash or in kind, while indirect incentives may be in the form of services or natural resource policies addressing a specific conservation problem. Such incentives are used to channel production factors in a predetermined direction, in this case, towards wildlife and forest biodiversity conservation. Incentives may be directed towards specific key groups or stakeholders. However, in wildlife and forest

biodiversity conservation, incentives are mostly intended to appease local communities and encourage their participation in conservation efforts. Since the scenario of who benefits and who bears the cost of conservation is divisive, incentives are supposed to smooth the uneven distribution of costs and benefits. This would ensure equity within generations and lay the foundation for equity across generations, as in the concept of sustainability. However, incentives require some degree of regulation, enforcement and monitoring. They must be used with considerable sensitivity if they are to attain their objectives and must be able to adapt to changing conditions (McNeely *et al.* 1997).

Therefore, if incentives are to be 'the opportunities and constraints that influence the behaviour of individuals and organisations in a society – stakeholders…' and 'incentives governing the use of biological diversity and its components are produced by a society's institutional environment' (IUCN 1999), then entitlement rights are incentives. Thus, entitlement rights engender favourable social environments and function in the broader set of incentives governing human behaviour to elicit good resource governance in sustainable resource management. In any case, it has been noted that in community-based conservation, there often has been a mismatch between what conservationist have thought of community benefits (for example, the sharing of benefits from ecotourism) and what multi stakeholders in communities may have considered as benefit (Songorwa 1999, Brown 2002, Berkes 2003) the emerging conclusion from this literature is that conception of local incentives purely in terms of community economic benefits is too narrow, too simplistic, and potentially counterproductive.

Institutionally, IUCN (1999) identifies three constraining interactive components of incentive measures, which are also relevant to the concept of entitlement. First, there are *formal constraints*, which include written instruments providing a legally enforceable framework for economic and social activities in society. These constraints can conveniently be divided into laws, government policies and property rights. Second are *social constraints*, which include unwritten rules that govern everyday human behaviour in economic and social exchange. Cultural norms, social convention, mores, etiquette, traditions and taboos are all social constraints. Compliance with social constraints is by convention and not through legal channels. The purpose of social constraints is to reduce uncertainties by making human behaviour more predictable. Finally, there is *compliance*, which is a degree to which individuals and organisations respect and adhere to existing constraints, both formal and social. The relative level of enforcement determines the extent to which the individuals and organisations in a society comply with formal and social constraints.

Environmental political geographers and legal anthropologists use the concept of legal pluralism to deal with the first two interactive components – formal constraints and social constraints. Property rights are among the most influential institutions[11] that affect how people interact with natural resources. They not only affect who may use what resources and in what ways, but also shape the incentives people have for investing in and sustaining the resource base over time. Hitherto, approaches to understanding property rights have too often regarded

[11] In this case, institutions are viewed as rules. This helps to distinguish institutions from organisations. Institutions are generally defined as rules, regulations and conventions imposing constraints on human behaviour. They can be 'both enabling (in providing ways through which people negotiate their way through the world) and constraints (in providing rules for action)' (Mehta *et al.* 1999: 13).

them as unitary and fixed, rather than diverse and changing. Reflecting these conceptions, policy makers have often sought to consolidate rights through statutory law in the name of providing tenure security or in the quest for efficiency through 'well-defined' property rights. However, such a conception of property rights is flawed on two counts. First, it does not reflect reality, because it ignores the many different bundles of property rights and multiple bases for claiming property rights that exist. Secondly, even if a single, unchanging form of property rights was possible, it would not be well adapted to the uncertainties which are frequently encountered in dealing with natural resources (Meinzen-Dick and Pradhan 2002). It is therefore important to recognise the multiple and often overlapping bases for claims, and to regard property rights and the uses of resources as negotiated outcomes as encompassed in the concept of entitlements. Not only does this lead to a more accurate understanding of the situation that resource users face, but it also allows greater flexibility to adapt to the ecological and socio-economic dynamics as argued by Adams (1997).

Conclusions

Generally, and viewed historically, in reforming the wildlife and forest biodiversity conservation approach, the current management regime tends to favour community self-regulation, organised bargaining and administrative regulation. This is entrenched by the global consensus that the community-based sustainable development approach is central to rural development and natural resource management. However, one of the major hurdles, especially for community-based conservation, is the cultural and socio-economic heterogeneity of the communities involved. The local institutions also tend to be very dynamic and complex in their relationship to varying ecological conditions within and around wildlife and forest conservation areas. Under these conditions, the entitlements framework offers a useful set of analytical tools for taking a more disaggregated approach to people-wildlife and forest relations.

The key elements of the entitlement framework are 'rights to own', 'rights to use' and 'rights to intervene'. Entitlements cover the whole range of socially sanctioned as well as formal legal institutional mechanisms for gaining access to and control over resources. More specifically, entitlement refers to alternative sets of utilities derived from environmental goods and services over which social actors have legitimate effective command and which are instrumental in achieving well-being. The alternative set of utilities that comprises wildlife and forest biodiversity entitlement may include direct use in the form of commodities, such as food, water or fuel; the market value of such resources and the utilities derived from environmental services. Entitlement therefore enhances people's capabilities, which are what people can do or be with their entitlements. Because of the heterogeneity of the local communities involved in community-based conservation, it is clear that different individuals or groups have different capabilities. It is therefore imperative to identify them.

Stakeholder theory, which was initially developed by students of business administration and corporate management, has found usefulness in wildlife and forest biodiversity management. It anchors well within the framework of environmental entitlement. There are several criteria for distinguishing stakeholders based on entitlement rights. These include existing

rights to land or natural resources; continuity and traditional relationship with resources; indigenous knowledge; loss and damage incurred in the management process; and degree of effort and interest in management. Generally, in wildlife and forest biodiversity conservation, a stakeholder is defined as including various institutions, social groups and individuals who possess a direct, significant and specific stake in the protected areas. However, since wild animals are not confined to the reserves and are perceived by government agencies as government property, the scope of stakeholders expands to include those who influence or affect, or are influenced or affected by the conservation effort and are not engaged in management. In the context of 'protectionism', these stakeholders are considered as not being essential in wildlife and forest conservation. In the current conservation approaches, everybody within the conservation area and some far away are considered as stakeholders if they hold an interest. Because of the diversity of the actors and the varying ecological conditions, it has become very critical to identify stakeholders for community-based wildlife and forest conservation.

4

The research methodology

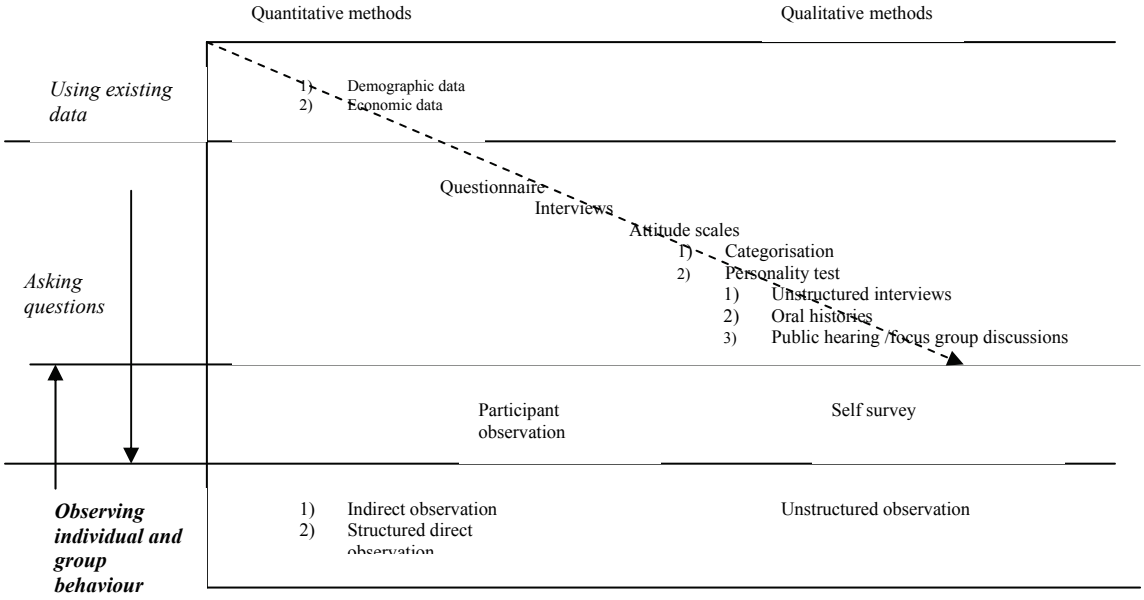
The community-based conservation approach and related development and environmental issues are complex. This conservation approach, being generally new in present-day conservation, is faced with a multiplicity of challenges inherent in the framework of entitlement rights. New, innovative ideas involving a wide range of stakeholders are being generated and tested on a pilot basis. To study the entitlement rights and the stakeholders involved requires an approach with a wide, but focussed, coverage. The methodology of this study therefore employs a combination of several data collection techniques. For each technique, a multi-subject survey was used to collect data on related subjects from respondents. This approach overcomes biases, as combinations of methods provide different sets of information which are mutually enriching (Gueye and Freudenberger 1990). The basic techniques used include asking questions, observing and extracting existing secondary data (Figure 4.1). Asking questions targeted various stakeholders. For the local communities, a combination of structured and semi-structured questionnaires was used for a household survey. This was supplemented by focus group discussions and the use of key informants at village level. With the officials, mainly from government agencies, ministries and departments, and staff from non-governmental organisations and private firms engaged in conservation and development issues in Taita, unstructured interviews were held in the form of informal discussions. These were supplemented with secondary data collection. Observations in the field were also made and records were taken during the household surveys. In terms of time, the data collection was done during in two phases within 12 months between October 1999 and September 2000. The first phase, which started in October 1999 and ended in March 2000, involved a literature review and pre-testing of the questionnaire. Household survey and group discussion with follow-ups for detailed discussions with key informants were also done during this period. The second phase started in April 2000 and ended in September 2000, and involved interviews with relevant government officials and officials of specific development and conservation agencies located in the district or elsewhere, all with a specific interest in conservation in Taita. Another group included mainly ranchers and people involved in sanctuary management. In most cases, there was an overlap of activities in the two phases, especially where unscheduled

opportunities arose to gather more information, such as during participation in workshops and at public meetings. The methodology thus also recognises the dynamic nature of data collection. Below, we further discuss the methodology and highlight the field experience, quality and weaknesses of the data.

General approach

The approach adopted in this study recognises the complexity of analysing and understanding environmental problems. Methods of data collection and data analysis for environmental problems, in general, and for forest conservation problems in Africa, in particular, have been criticised for being inadequate for the analysis of complex policy issues (Omondi 1994).

Figure 4.1
Socio-economic data collection methods



Source: Modified from Whyte (1977).

Furthermore, problems are commonly analysed under a narrow disciplinary framework, which predetermines the nature of the conclusions and leads to professionally biased proposals (Abel and Blaikie 1986). Various methods together provide different types of information which are mutually enriching. Thus, where possible, it is better to select techniques that are complementary in that they provide crosschecks and new information (Whyte 1977). In this regard, the general typology of Whyte (1977) was used (Figure 4.1).

The methodological approach also takes into account the fact that community-based conservation in the Taita area and elsewhere is hinged on multiple-use functions of land (Stein *et al.* 1999). The present study accordingly adopts an interdisciplinary approach,

addressing issues related to entitlement rights and resource governance. It uses a 'multi-data approach' (Crano 1981; Anderson 1990; Fowler 1990 and 1993; Fowler and Fowler 2002), also referred to as a 'multiple-subject survey' (Casley and Lury 1987). Campbell (1963) describes this approach as a 'triangulation approach'. According to Casley and Lury (1987), such an approach is suited for studies at a district or regional level, with the number of respondents ranging between 100 and 1,000. The typology of data collection and analysis in the multiple subject survey is defined as '... one in which data relating to several related subjects are collected from the same respondents using an integrated questionnaire and the same basic framework' (Casley and Lury 1987: 44).

Sampling and asking questions

Five research sites were selected within the main study area, namely, the Kishushe, Maktau and Kasigau areas in the lowlands, and the Ngangao and Mbololo areas in the hills. The selection of these areas was based on human habitation and proximity to the conservation areas. This implies that data collected on human-wildlife conflicts is not representative of the whole districts but representative of areas bordering the conservation areas. Kishushe and Maktau border each other, while Kasigau is isolated and has a distinct history. The three places experience wildlife-related conflicts. The Ngangao and Mbololo areas border on forest reserves. The five sites were later grouped into three, comprising the Kishushe/Maktau, Kasigau and Ngangao/Mbololo areas.

Asking questions involved the use of a variety of survey techniques, ranging from highly structured, randomised precoded questionnaires to informal, non-standardised interviews (Freudenberger and Gueye 1990). A distinction between the two ends of the spectrum is that the latter employs specific key informants, the rationale of which is that some people are better informed about the interview topic. A scale of knowledge ability is often included in questionnaires on technical issues. The other technique is the focus group discussion, which in Whyte's (1977) typology fits under public hearing. These methods were used as part of the general methodological approach and according to the nature of the target groups, which included the local communities and officials in relevant government offices, non-governmental agencies and private firms. The units of analysis therefore included the household[1] for the local communities (which form the bulk of the survey), government officials, non-governmental officials and managers of private firms, including ranches and sanctuaries.

In the local communities, the basic method used was a combination of structured and semi-structured questionnaires with both closed and open-ended questions. These were administered through face-to-face interviews. The purpose of such kind of questionnaires is to gather specific information and stimulate informal, but focussed, discussions. Households were the

[1] 'Although there is a general agreement that the household is both a convenient and appropriate sample unit for many surveys, there is no universal agreement as to its definition' (Casley and Lury 1987: 161). This study adopts the following definition developed by Casley and Lury (1987): 'A household comprises a person, or group of persons, generally bound by ties of kinship, who live together under a single roof or within a single compound, and who share a community of life in that they are answerable to the same head and share a common source of food.'

basic sample units and the head of the household the main respondent, but with specific attention to spouses and other adults in the household. Sampling and the number of interviewees were based mainly on general topography and proximity to the protected wildlife and forest areas. The number of interviewees for the three main areas – Kishushe/Maktau, Kasigau and Ngangao/Mbololo – was 58, 56 and 55, respectively, totalling 169. Table 4.1 below summarises the numbers of interviewees and their respective locations.

Table 4.1
Classification of research sites based on eco-zone and proximity to protected areas

Sampled area	Villages	Number of interviewees	Analysis area	Area interviewee number	Eco-zone (topography)	Protected area
Kishushe	Kishushe	34	Kishushe/	58	Lowland	Wildlife
Maktau	Maktau	24	Maktau area			
Kasigau	Bungule	15	Kasigau area	56		
	Jora	11				
	Kiteghe	10				
	Makwasinyi	10				
	Rukanga	10				
Ngangao		25	Ngangao/	55	Upland	Forest
Mbololo		30	Mbololo area			

In the lowland, the homesteads are located on the flanks of the hills, while in the hills the households interviewed live around the forests. This formed the basis for a simple random sample of the respondents. Using this technique, non-neighbouring homesteads were selected. This was done by interviewing households at intervals of several households and at a varying distance from the protected wildlife and forest areas. The assumption was that those households closest to the protected areas have a direct relationship with wildlife and the forest within the conservation areas. The selection of the specific respondents in the household depended on who was available, but had to be either the head of the household or the next most senior member.

Before the actual household survey was conducted, the local people were informed about the research and its objectives at public meetings, through chiefs, councillors and other group meetings, such as masses and meetings of women and youth groups and self-help groups. The local people were also informed on occasions before and during the survey, such as seminars and workshops organised by NGOs like the East Africa Wild Life Society (EAWLS), which was by then endeavouring to educate people on the importance of forest conservation. The main survey was also preceded by an intensive period of pre-testing of the questionnaires and the training of four field assistants (which did not prevent the principal researcher from being intensively involved in data collection).

The questionnaire was organised into two parts, which were further divided into sections. It had an introductory section, which briefly outlined the objective of the survey and contained a statement of confidentiality of the information provided. Part I focussed on background of the respondent and income-generating activities, including farming. This part included questions on the demographic, social and economic characteristics of the household, such as age, sex, level of education and occupation. It was also designed to seek information on land ownership, place of origin and length of residence in the region. Part II focussed on the nature and extent to which

the local people and other stakeholders are involved in wildlife and forest biodiversity conservation and on rights, obligations and responsibilities. This part also sought information on who manages, invests and bears the costs and benefits from wildlife and forest biodiversity; and questions on human-wildlife conflicts and benefits. It also covered issues of wildlife and forest biodiversity degradation and how socio-economic factors impinge on conservation and the attitude of the local people towards the conservation efforts. The questionnaire was simplified for easy recording. In situations where the respondent was required to rank, cards with drawings representing specific issues were used and the respondent was required to arrange them accordingly. The questionnaire was designed to take between one and a half and two hours.

To supplement the household surveys, six focus group discussions were conducted. These discussions were held in the Kishushe/Maktau, Kasigau and Ngangao/Mbololo areas. For each area, two focus group discussions were held and each group was expected to have 5-10 household representatives identified during the household survey. In fact, however, these groups were composed of 10 and 13 for Kishushe/Maktau, 11 and 11 for Kasigau and 6 and 7 for Ngangao/Mbololo area.[2] In terms of gender, males dominated in all the groups. Only one representative was required for each household, the head of the household or a second senior member. In some cases, two or more members of one household attended, but they were treated as one household for the statistics of attendance. If they were both a man and a woman, the male (if head of the household) was counted. The overall percentage of female participation in the focus group discussions was 34.3%, compared to 28.1% of female respondents in the household survey. Table 4.2 summarises the composition of the groups' discussants.

Table 4.2
Composition of focus groups' discussants

Sample areas	1st Group			2nd Group			Total			Percentage	
	♂	♀	Total	♂	♀	Total	♂	♀	Total	♂	♀
Kishushe/Maktau	6	4	10	9	4	13	15	8	23	65%	35%
Kasigau	8	3	11	6	5	11	15	7	22	68%	32%
Ngangao/Mbololo	2	4	6	5	2	7	7	4	11	64%	36%

Key: ♂= male; ♀ = female.

The focus group discussions were generally open, although an outline of the issues to be discussed had been prepared before the discussions. The principal researcher and the research assistant controlled the discussions in order to avoid dominance by some members and a polarisation of views. One member was selected from each group as a key informant for a follow-up and confirmation of some key issue. The key informants also provided information on traditional entitlement rights and resource governance systems to complement the 'older' members. Care was taken to interview both 'influential' members of the community (*e.g.* former leaders and recognised elders) and more marginalised members, and to include various ethnic groups residing within the Taita area, where the large majority are Taita.

[2] In the Ngangao/Mbololo area, general attendance was not favourable. Many studies have been conducted in Ngangao area and fatigue was evident, as people were not willing to be interviewed. They argued that many interviews had been conducted before and that they did not see any result from it. Some asked for payment. It was learned that in the past some researchers have been paying interviewees around Ngangao forest.

Oral histories were obtained from older people, both men and women. These older people were selected during the household survey on the basis of age and experience. Recommendations by other local respondents during the process of the household survey also assisted in the selection. Two people were selected for each area. The purpose was to collect anecdotes of the historical evolution of the study area, focussing on wildlife and forest biodiversity conservation and management, entitlement rights and the natural resource governance system. The oral histories were narrated mainly in the afternoon in the shade of a tree within the homestead, or inside the house. To stimulate the narrations, members of the respective households were free to join in. In some cases, the narrator was visited several times to clarify some issues noted in secondary data or picked from social places in the trading centres.[3]

In addition to the household survey, focus group discussions, key informants and oral histories, informal in-depth discussions were conducted during the unstructured interviews. The target groups included selected relevant officials and conservation experts from government and non-governmental development and conservation agencies. The local politicians (local community representatives and informants[4]) and leaders were also interviewed. For the purpose of identifying interviewees, a list of stakeholders and their activities was compiled from secondary data. This list contained key government ministries, departments and agencies, non-governmental organisations and donor agencies involved in development and conservation projects, as well as private individuals interested and involved in conservation activities in the Taita Taveta district. Officials, particularly field officers from each entity of the stakeholders list, were targeted. The choice of officials interviewed was based on whoever was available, but with a bias towards those officials in the field and heads of projects. Indeed, it is clear that, where interviews were conducted with officials based at the headquarters, information of a lower quality was obtained than from interviews with the field officers.

Incidentally, during the field survey, the principal researcher was invited for a three-day workshop organised at the Tsavo East National Park education centre by the Pact Community Capacity-Building and Enterprise Development Programme. The Pact collaborated with the East Africa Wildlife Society (EAWLS) and with the African Conservation Centre (ACC) to implement the community-capacity building component of USAID/Kenya's Larger Conservation of Resources through Enterprise (CORE) programme. Various other stakeholders had been invited. The discussions were based on experience with community-based conservation. A lot of in-depth information was obtained through this workshop. Informal discussions with the participants during the workshop and in social places particularly the hotels where they were booked also provided in-depth qualitative data. Contacts were made for subsequent interviews with various people. In Kasigau, the principal researcher was also invited to attend a Kasigau ranch management meeting. Through this meeting, detailed information on the

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3 Social places included hotels and restaurants.

4 In addition to local politicians, other local informants were identified in the field and viewed as local community representatives and stakeholders in wildlife and forest resource management and conservation. Quite often, these people were leaders of the local people in different spheres such as the religious sphere or representatives of the community in various forums. However, the main criterion for selecting them was the role they played in community-based activities, and notably the conservation programmes. Kenya Wildlife Service (KWS) community-based conservation officials, chiefs and local people were used in selecting local informants. Field data collected from the local communities complemented and supplemented information from the local informants.

ranch and wildlife and forest conservation was obtained. Other attempts were made to attend public meetings[5] simply as a member of the local community.

Observations

Observations were also made during the field survey. These were mainly to ascertain some responses in the questionnaire or recorded during the unstructured interviews. During the household survey, the kind of homestead and setting, fencing of homesteads and farms, and nature of land husbandry were observed. Observations were also made in situations where there was evidence of the presence of certain animals, particularly the elephants, or damage to private property by wild animals. One person who had been seriously injured by lions while grazing his animals in the lowlands was also visited at Mkuki ranch. Other sites visited for purposes of observation included the electric fence, some Kenya Wildlife community projects sites and community-based forest and wildlife NGO projects sites. Land, the ownership of which is contested between local people in Isangaiwishi ranch and the Taita Hill Wildlife Sanctuary, was also visited. An excursion was also made within the Taita Hill Wildlife Sanctuary courtesy of the management, while discussing pertinent issues to this study.

Existing data

The existing or secondary data was extracted from various sources. This data is mainly in the form of raw or processed data in data centres, publications, reports and other records, including administration files. The relevant sources of this kind of data included government sources, particularly the local government (Taita Taveta county council) and provincial administration records (archival records), and national and district development plan documents. It also included documents of the Tsavo National Park offices, education centre and research centre, the Voi court occurrence book (records of crimes related to wildlife and forest conservation), and material from the Kenya Wildlife Service (KWS), National Museums of Kenya and the Central Bureau of Statistics (CBS). Various ministries and departments at the district level were other sources. These included the ministries in charge of agriculture and livestock, wildlife and tourism, environment and natural resources, cultural and social services, reclamation of arid and semi-arid areas and wetlands and the Department of Resource Survey and Remote Sensing (DRSRS). The national archive in Mombasa and Nairobi, university libraries and documentation centres also provided secondary data. The private sources of secondary data included documents from various non-governmental organisations involved in development and conservation. Some of these agencies operating in Taita Taveta district include voluntary agencies, such as Care International (Kenya), Foster Parents Plan International (FPPI) and the Bellerive Foundation. Others involved in conservation projects include the East Africa Wildlife Society (EAWS), the

[5] An attempt to attend a conflict resolution meeting between members of Isangaiwishi ranch over land ownership was not successful. The District Commissioner, who was the convener, denied permission on ground of security. However, for unknown reasons the meeting did not take place. Details of the case were obtained through other means.

African Wildlife Foundation (AWF), the African Conservation Centre (ACC – formerly World Conservation International) and the Danish Agency for Development Assistance (DANIDA), which is involved in development.

The range of data required to realise the objectives of the study was varied and included demographic and wildlife ecological data. Other data related to wildlife and forest conservation initiatives, ethnographic and climatic data. In essence, the secondary data from both government and private documents provided reliable details of the historical and physiographic features of the study area; human, wildlife and livestock statistics; records of wildlife and the effects of humans and *vice versa*; wildlife migratory routes; habitat types; tourist activities; infrastructure; land use (current and potential); and general environmental conditions, such as degradation. They also provided a historical perspective of the elements of entitlement and resource governance.

Field experience, quality and weakness of the data

The process of data acquisition was generally laborious and required meticulous planning. The methodological approach employed in this research, as described in the introductory sections of this chapter, is unique. It acknowledges that every method has its own biases, which can be overcome by using a diversity of methods. Together, the various methods provide different kinds of information which are mutually enriching. It uses a combination of various quantitative and qualitative data acquisition techniques and a multiple-subject approach was employed for each. In this way, the approach circumvented the limitations of using a single technique. No other data exist for the study area which are at the level of disaggregation and as detailed as those collected for this thesis.

However, the data collected has its limitations. In particular, the respondents were very diverse. The use of a combination of survey techniques put constraints on the work of the research assistants. The research assistants were more involved in the quantitative surveys, while the principle researcher had to be fully involved in qualitative surveys. This necessitated spending a lot of time in the field collecting and collating the data. The distances between the three main study areas and communication by road were sometimes a nightmare, especially during the rainy period. Some places in Mbololo were simply not accessible by motor vehicle. In the lowlands, some areas (particularly Kishushe and Kasigau) are very insecure because of bandits. As a result, these areas were visited fewer times. In general, this resulted in less supervision of the research assistance than was originally envisaged. However, recruiting experienced research assistants and good pre-survey training mitigated this.

Part Two

Entitlement structures for wildlife and forest biodiversity conservation

In this part of the thesis, we discuss the entitlement structures for wildlife and forest biodiversity conservation. We endeavour to describe the entitlement structures for wildlife and forest biodiversity conservation in Taita. Part Two comprises Chapters 5, 6 and 7. In Chapter 5, we place the existing entitlement structures in a historical perspective, focusing on natural resource management traditions among the Taita people. We describe how the Taita came into existence, built up a culture in the new ecological setting and were confronted by European incursions, ending with a description of the situation for the contemporary Taita people. An understanding of the origin of the Taita people and their traditional entitlement structures would be incomplete without reference to their demographical history. Accordingly, the chapter also presents a demographic analysis. We further highlight the impact of the population of the Taita Taveta district on entitlement rights and the conservation of wildlife and forest biodiversity. Finally, the chapter addresses the main environmental and socio-economic problems in Taita.

Chapter 6 discusses land use and tenure. In this chapter, land is viewed as the basic resource through which other biological resources are owned, used, managed and contested. We first discuss land, land use and tenure in the Kenyan context and then narrow down to analyse land use and tenure in Taita Taveta district in more detail. We present the current status, with the aim of identifying who owns what land and what use is made of it. We review the rationale for the establishment and subsequent demarcation of the conservation areas (including the Tsavo National Park) and the existing and planned sanctuaries and forest reserves.

Chapter 7 discusses wildlife and forest biodiversity conservation in Kenya and its relevance for Taita. It draws attention to the conservation typology, which depicts the contemporary wildlife and forest biodiversity conservation entitlement structures in Taita in the national context.

5

The Taita people and their traditional entitlement structures

Environmental management has historically been the preoccupation of most traditional resource management systems, such that the evolution of what are today's indigenous institutional structures seems to reflect the way the communities organised their lives in ecological settings. Moreover, history is seen as a multiple process of interaction between external and internal actions and events, in which contingencies and path-dependency play a significant part. As Abrams (1982) and others have emphasised, history is central and necessary to sociological enquiry, as the lens through which the relationships between agency, structure and power – or social actors and institutions – becomes apparent. In this respect, the current natural resource policy makers ought to pay attention to what traditional cultures have to offer. On these grounds, and in the context of entitlement structures analysis, this chapter delves into details of indigenous natural resource management practices among the Taita people. The chapter depicts, as clearly as possible, the picture of the coming into existence of the Taita people, their cultural development, the incursions by the Europeans and the socio-economics of contemporary Taita. The demography of the Taita people at the district level is also analysed on the basis of national census data. Important demographic factors are discussed in detail. These include population size and trends, starting from the earliest date possible to the present time, growth rates (birth and death rates) and population structure. Other data presented include distribution and density, movements and some social and economic aspects. We further highlight the impact of the Taita Taveta district population on the conservation of biodiversity, particularly in relation to entitlement rights. The chapter also highlights the main environmental and socio-economic problems in Taita.

The Taita people

Introduction and nomenclature

The Taita form a discrete cultural group, speaking a Northeastern Bantu (Niger-Congo) language and residing in the Taita Hills (Nazzaro 1974: 216). The Taita Hills include three separate hills: Dabida, Sagalla and Kasigau. Dabida hill is the largest of the three and the word '*Dabida'* in Taita language means 'people of the mountain top'. This signifies that a differentiation is made between people living in the elevated, well-watered forest region and those living in the *Nyika*[1] or the bush land (Harris and Harris 1953).

The Swahili people[2] first used the word '*Taita*,' after the people of Dabida began travelling to the coast in the early 19th century. The word was derived from the behaviour of the Dabida people, who used to assemble and stay together on the coast, always making roll calls to ensure the presence of everybody. The Swahili people would say: '*Ngoja wale wataitana*' meaning, 'shortly they will begin calling each other'. Consequently, the Dabida people were referred to as Wataita (wa- Swahili adverb) Taita. Under the British administration (1895-1963), the official spelling was Teita. Since independence in 1963, Taita is the name and spelling recognised by the government (Were *et al.* 1986).

Area coverage

As we have said, the Taita occupy three giant hills which rise abruptly with steep slopes out of the arid bush country in Taita Taveta district[3] – Dabida (Taita hills)[4], Sagalla and Kasigau.

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1 *Nyika* is a Swahili word referring to the plains, which are generally dominated by bushes, scrub and grass. The plains could equally well be described as the savannah–bush land, shrub land or grassland.

2 Swahili people refers to the Swahili-speaking people who resided on the coast and were mostly involved in the trade with the Arabs and the people from the interior. These people were mostly intermediaries in trade between the interior and the sailors. However, this study notes that there is a great deal of argument about the use of the term Swahili as it has been applied to a specific ethnic group. Many coastal people have been subsumed under this appellation because of their use of the Swahili language, when they may well have been some other identifiable ethnic group.

3 Taita Taveta district is named after the Taita and Taveta people who dominate in the district and are believed to have occupied the district for the last 475 years (Merritt 1975: 49). In terms of population, by 1999, the Tata and Taveta people accounted for 70% and 10%, respectively. However, before Kenya's independence, the Taita and Taveta population may have accounted for more than 90% of the total district population. The district was created in the 1890s. The Imperial British East Africa Company had subdivided the country into a number of districts with headquarters in each of them, supervised by the District Superintendent, who reported directly to the Chief Administrator in Mombasa. After the Imperial British East Africa Company (IBEA) surrendered its charter on 30 June 1895, the Foreign Office of the East Africa Protectorate assumed control three months later in September 1985. The up-country districts were combined into one province and called Ukamba Province. For administrative purposes, the province was divided into four districts, namely, Taita, Ulu, Kitui and Kikuyu. A District Officer was in charge of each of the districts and was answerable to Her Majesty's Subcommissioner, who reported to Her Majesty's Commissioner. The headquarters of Taita District were established at Ndi, a centre along the Nairobi-Mombasa highway and an administrative centre for the IBEA before the surrender of its charter. In 1900, the headquarters were transferred to Taveta. After two years, in 1902, it was transferred to Mwatate. Mwatate was the district headquarters until 1911, when the station at Voi was opened. Voi served as the administrative centre for the district until 1954, when the headquarters were finally moved to the current location, Wundanyi.

4 Dabida hill is the largest; it is about twice the combined size of the other two, Sagalla and Kasigau. It has over 40 peaks, some with very steep cliffs, separated by a crisscross of ridges and valleys. It is the main

Their combined area is approximately 350 square miles (900 km^2). These hills are like islands in the sea of arid bush land. Thus 'Island people' (KNA DC/TTA/4 1955; Nazzaro 1974) is an apt way to describe the Taita, for they have always been cut off from close contacts with neighbouring people by the inhospitable and almost uninhabitable plain, which extends for kilometres in all directions (Nazzaro 1974). Bravman (1998) argues that the island metaphor is an aspect of modern Taita consciousness, but that the Taita people far back in time had been a less solitary group, and were neither isolated nor a social monolith. He described Taita as more like part of an archipelago in a well-travelled sea. Merritt (1975) described the hills as the hub of a wheel surrounded in all directions by neighbours living from fifty to one hundred miles away. These hills are a refuge, superbly positioned, strategically and logistically, to perform hit-and-run attacks against their neighbours. They ensure maximum security against reiterations, new attacks and other calamities, particularly droughts, which the Taita associated with the plains (Merritt 1975). Nevertheless, the Taita hills are geographically isolated, a phenomenon that led ecologically to a divergent evolution, as evidenced by high rates of endemism.

Neighbours

Although the Taita people are often described as an 'island people', substantial contacts with surrounding people did occur. The Mijikenda people in Kwale are the closest neighbours and share social cultural and linguistic affinities with the Taita. Other neighbours are the Kamba to the north, Taveta and Chagga to the west. The Pare and Shammbaa hill people of northern Tanzania are also close. The other closest neighbours are the Maasai, bands of whom occasionally pass near the Taita hills (Nazzaro 1974).

Historical origin

The origin of the Taita people is not clear. However, Oliver (1966) indicates that these people began to arrive in East Africa in around 1,000 BC. After their arrival in East Africa, it is not clear how they reached and settled in the Taita hills. However, there are two theories. The first theory is that the Taita entered the Taita hills from nearly every direction and that they neither had nor claimed to have a common origin. They are a hybrid people, the product of centuries of blending of disparate groups through assimilation and intermarriage. Secondly, it is thought that the Taita migrated to the Taita hills at different times using different routes, but from a common dispersal site. The most likely common dispersal site is Shungwaya, an area north of the Tana River in the vicinity of the present Port Durnford Bay (McIntosh 1968: 200-205). Nevertheless, the two theories concur that the Taita are made up of various groups of Bantu-speaking people.

In Taita oral tradition, their history begins with two autonomous pre-Taita peoples occupying the Taita hills. The first group consisted of stone-age hunter-gatherers called Wasi

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home of the Taita, and therefore sometimes referred to as Taita Hills, excluding the other two. In this study, however, as in many other cases, we shall refer to it as Dabida. Wherever 'Taita Hills' appears, it refers to the massif of the three hills together.

(Neolithic Cushites).[5] These hunter-gatherers, probably as early as the beginning of the first millennium BC, were joined by food-producing and animal-keeping people called Bisha (Oliver 1966: 106-107)[6] who, it would appear, either killed off, drove away the hunter-gatherers or intermarried with and absorbed them. The latter is most likely, as Oliver describes the second group as made up of the Wasi and Bisha. Much later, in around the 16th century, the Bantu-speaking ancestors of the present-day inhabitants settled in the area. Again, the pre-existing inhabitants were either absorbed or banished by the newcomers. Later in the 17th or early 18th century, the Bantu-speaking settlers were seemingly joined by the Galla Cushitic (Afrosiatic)[7] and Nilo-Saharan speaking Iloikop Maasai or Kwavi.[8] It is assumed that these tribes constitute the third group of inhabitants who were the ancestors of the modern Taita people (Merrit, 1975).

Several other groups of people used some parts of the present Taita Taveta district, particularly the plains. These include the Waata – Galla-speaking hunters[9], who are probably of Sandawe origin and specialised in elephant hunting; the Orma, also Galla-speaking Cushitic pastoralists; and the Maasai, who were highland pastoralists with Nilotic affinities. The others are Kamba, Bantu (primarily cultivators, but with extensive pastoral and hunting interests), Pokomo, Bantu agriculturists in the riparian Tana forest and Mijikenda, comprising nine closely affiliated tribes of the Giriama, Kauma, Chonyi, Jibana, Kambe, Ribe, Rabai, Duruma and Digo, who were cultivators in the coastal strip and its immediate hinterland.

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5 The Taita people traditionally disliked the Wasi because of their 'foreign' language and their inferior technological and social achievements. They were, however, acknowledged for their expertise in hunting. In the Taita language 'Wasi' is almost a synonym for 'expert hunter' and it is for their hunting abilities that they are most remembered (Merritt 1975: 34). The incoming groups absorbed the Wasi people slowly as the population of agriculturalists grew. However, as they were despised, the Taita girls were discouraged from marrying them. Nonetheless, the name Wasi and people identified with Wasi still survive in areas of Ndara, Sagalla and Mbololo. However, most families with this name are reluctant to identify with the traditions of their Wasi past.

6 Bisha are thought to have been a mixture of the Wasi Neolithic Cushites and the Bantu in the 9th century. Oliver (1966), in Merritt (1975: 37) identified one village, Kindu in Sagalla, as belonging to the Bisha. However, he notes that the village residents were not outwardly distinguishable from people in the surrounding area.

7 The Galla, probably ultimately of Arabian origin, are believed to have come into present-day southern Somalia and Northern Kenya from Ethiopia and Somalia (Nazzaro 1974: 25, footnote 7).

8 Kwavi Maasai are a major offshoot of the Maasai who had taken up agriculture.

9 Waata (also spelled Watta) were Galla (Cushitic)-speaking hunters specialised in elephant hunting. This group of people are not the same as Wasi, who were the hunter-gatherers among the Taita. The Friends of Tsavo Newsletter of May 2002 indicates that Waata people are the same as Waliangulu, also referred to as Sonye. However, there is no mention of Waliangulu in Merritt's (1975) history of the Taita apart from Wasi. Literature mentioning the Waliangulu (Njogu 1997) indicate that they were exclusive hunters who subsisted on elephant, thus referred to as elephant people. The Waata people are discussed by Merrits (1975) and Nazzaro (1974) as exclusive hunters of various species of wildlife, including elephants, but with more interest on elephants, particularly after the 1820s, when the market for ivory expanded. Based on this, it is likely that the Waata and Waliangulu are the same or the one a subset of the other. Chapter 5 of this study deals with the Wasi and Walingulu as separate groups.

Table 5.1
Main ethnic groups in Taita Taveta (based on the 1989 census)[10]

Ethnic group	Number	Ethnic group	Number
Taita	148,200	Tanzanians	2,401
Kamba	20,557	Ugandans	93
Taveta	10,529	Pokomo	265
Mijikenda	6,986	Borana	242
Luo	5,069	Somali-so-stated	156
Luhya	3,611	Orma	142
Kikuyu	3,108	Embu	124
Maasai	814	Kenyan Asian	105
Kisii	507	Kenyan Arab	101
Boni-sanya	432	Basuba	99
Meru	361	Other Africans	244
Kalenjin	340	European	499
Gurreh	300	No response	346
Turkana	282	Sub-total	206,495
Other Kenyans	582	Others	778
		Total	207,273

Note: 'Others' includes ethnic groups whose number is below 98 individuals.

However, the Taveta area and its people (a very small Bantu group cultivating in the Taveta groundwater forest) are not covered in this study, but it is worth mentioning that the Taveta people are not considered very different from the Taita people. The Taveta area is believed to have been uninhabited until about 1600 (Merritt 1975: 68). In brief, the Taveta people also originated from several groups of people. These groups include (i) families which emigrated from the Taita hills; (ii) Umba, a man and his family who ran away from the Taita hills after a conflict; (iii) the Kwavi Maasai from the plains; and (iv) Kamba people from Ukambani (Were and Soper 1986). Currently, many other ethnic groups from as far away as northern Kenya have settled in Taita Taveta district (Table 5.1).

The traditional entitlement structures

In this section we discuss several aspects of the Taita people which constitute their entitlement structures. These include the territorial division, socio-political organisation, traditional beliefs and worship, and economic life.

Territorial division
The ancestors of the present-day Taita, on arrival in the Taita hills, laid claims to tracts of land, which were often – but not always – named after the founding fathers, and the names were retained by the succeeding generations. For example, the Mwanda people in southwest Dabida are called by the name Mwanda, the man who claimed the area many generations ago.

[10] In terms of tribal composition, over 70% of the population is Taita, 9% Kamba and about 4.5% Taveta (1989 census). There are no data yet for the year 1999.

Such land became the territory occupied and defended by the people who claimed it. In most cases, because of the complex topography, the territories were naturally secure. However, the Maasai and Kamba are known to have attacked the Taita on their home ground. The Kamba occasionally attacked the Taita during times of crisis, such as drought and famine, when the Taita were too weak to defend themselves. In addition to their strategic location and position, the Taita are renowned for their exaggerated reputation of possessing powerful medicines, which served to intimidate their neighbours and keep them from attempting to raid or even retaliate when raided (Merritt 1975; Nazzaro 1974).

Social and political organisation

It is commonly argued that the Taita never evolved a centralised political system, as did most of their neighbours, such as the Pare, Chagga and Shammbaa communities (Were *et al.* 1986). In 1888, the first missionary who settled in the Taita area, J. Alfred Wray, wrote that 'the Taita... have no chiefs, law, nor government of any kind, each man does what is right in his own eyes...' (Wray 1888 and Hardinge 1897, VII: 1920 in Harris 1962: 125). John Rebmann (1848) also wrote that, '…the Taita are among those countries having the loosest form of republic…' (Harris 1962: 126). However, the early travellers to the Taita hills recorded having dealt with Taita 'chiefs' and/or 'headmen'. These people are thought to have been spokespersons or interpreters for the people they represented rather than chiefs. In any case, the Taita language has no word for 'chief', but only for 'leader', 'hero' and so on (Harris 1962: 126).

The main reasons for the lack of a centralised political system seem to be related to the diverse origin of the Taita people and to the frequent cataclysmic droughts and famines, which prevented political unification. The other reason could be the isolation of the three mountains, separated by the semi-arid plain, which was considered to be the source of calamities (Merritt 1975). Although the Taita people always used the plains for grazing, hunting and farming, they remained people of the hills (Merritt 1975; Nazzaro 1974). As a consequence of making use of the plains, the hills and the plains were seen as indivisible parts of a whole. Nevertheless, they had a special respect for the plains and had to perform certain rituals to protect themselves from the atrocities related to the plains, such as droughts, invasions by other tribes and wild animals. Several things could not be done in the plains. Otherwise, the people feared that calamities, including droughts, which they feared most, would befall them. These included quarrelling, violence, sexual intercourse, giving birth, pouring human blood or even dying in the plains.[11]

Nonetheless, the inhabitants of the three massifs developed a number of analogous, generally autonomous and self-contained large kinships or lineages known as *Vichuku Vibaha* (singular *Kichuku Kibaha*). Members of each *Kichuku Kibaha* claimed patrilineal descent from a common ancestor. The population size of each *Kichuku Kibaha* ranged from fewer than 100 to more than 1,000. Factors other than kinship contributing to the coalescence of *Vichuku Vibaha* included land rights based on traditional occupations. Authority at the village

[11] Group discussions held in Kishushe on 24 February 2000 with the local people and discussions with a key informant, Pastor Naftali Ngoe, who was born in the 1920s in Dabida (Mgange area), but had lived in Maktau since he was 5 years old.

level, or within the *Kichuku Kibaha*, rested with groups of elders who heard and resolved disputes, acted as witnesses and functioned as experts on tribal customs. Elders met on an *ad hoc* basis to settle disagreements through mutual understanding. Thus, even without a 'chief', state matters were managed expediently. A Holy Ghost Priest, Fr Mevel (1893), who was based at Bura Mission, described the Taita as follows:

> … the Taita live in groups of isolated villages which … the old one preside over … whom everyone respect, love and venerates, and whose words are sacred … great age … worn out and emaciated members class … including sorcerers, which explains fear and their veneration… (Nazzaro 1974: 17, Merritt 1975: 90).

Among the variety of known traditional specialists in Taita who were involved in state affairs was the *Mundu wa Figi* (the *Figi* specialist) or Mfigi, who was always a male. *Mfigi* was a 'protector' who, in any *Kichuku Kibaha,* was responsible for protecting the boundaries of his people's territory. This was accomplished by planting *Figi* medicine in strategic areas to prevent the entry of sorcerers, thieves, spies or anyone who intended to commit a bad deed. The *Figi* was also designed to prevent wild animals from entering the village and the fields. Apart from protecting settlements and farms, *Figi* men also held the position of ritual war leaders who went ahead of the warriors on a raid, carrying a protective device known as *Kiweto*.

A number of *Vichuku Vibaha* – usually two or more whose territorial boundaries were coterminous – formed what could be described as neighbourhoods. These neighbourhoods formed larger political divisions known as *Izanga*, meaning country or locality (Harris 1962: 58). However, these neighbourhoods were not rigidly bounded territorially or socially, nor were they indefinitely stable (Merritt, 1975: 86). They traded and interacted socially. For instance, although not encouraged, exogamous marriage did occur occasionally resulting in extra-*Kichuku* as well as extra-neighbourhood linkages (Harris and Harris 1953: 37).

Following the establishment of the colonial government in the late 19th century, the traditional territorial divisions were grouped into eight administrative locations, within which varying numbers of sublocations were included (Table 5.2). These locations were created without consideration of the boundaries of the neighbourhoods. However, the sublocations boundaries seem to conform to the neighbourhood concept (*Vichuku Vibaha*), with two or more large lineages sharing adjacent territories or, in some cases, they may represent only one single large lineage (Nazzaro 1974).

Being a patrilineal society, the male Taita possess the political power and control access to resources. Women have specific roles in production and consumption. We will discuss this in a later subsection.

Traditional beliefs and worship

Ritual functions strengthened the *Kichuku Kibaha*. Each *Kichuku Kibaha* maintained a special repository, usually a cave referred to as *Ngomenyi,* where the *Ngoma* (skulls) of male and female *Kichuku* members with living offspring were preserved after death. The worship involved offering sacrifices to these skulls of the ancestors in expectation of eliciting their

Table 5.2
The eight Locations and Sublocations in Dabida, Sagalla and Kasigau (1955)

Hills	Location	Sublocations
Dabida	Bura	Ilole, Mrungua, Karaga, Nyolo, Kwaweni Mwangi, Sagigu, Mhororo, Tungulu, Mnamu
	Chawia	Chawia, Mwatate, Kaya, Ngerenyi, Kidaya, Sechu, Kipusi, Wumari, Kishamba, Wusi, Macha
	Mbale	Irizi, Shaga, Kiruwako, Sungululu, Lembenyi, Tira, Mbule, Umingu, Mlachi, Werugha, Mlondo, Wumari, Msau, Mwarungu, Nyache, Ronge, Wumingu, Wundanyi, Wunyanyu, Wushumbu
	Mbolo	Ghaji, Kigumbo, Mraru, Ndome, Tausa, Wongonyi
	Mwanda	Kishamba, Lushangoni, Maktau, Mgange, Mgange-Dabida, Mgange-Nyika, Mlamba, Nyawuli, Shaga
Sagida	Ndara	Mlegwa, Mlombo, Silaloni,Voi
	Sagalla	Dambi, Kajire, Kishamba, Kizumanzi, Mgange, Talio, Teri
Kasigau	Kasigau	Bungule, Jora, Kirongwe, Kitege, Makwasini, Rukanga

Source: Harris and Harris (1955).

good will.[12] The principal importance of the common skull repositories was that they represented expressions of lineage unity and served to back up claims to long occupation of the territory. Each *Kichuku Kibaha* also maintained a variety of powerful objects or fetishes, the most important being a group known collectively as *Mifuko*. Most *Mifuko* included a bell called *Manga Saro*, consisting of a white shell and six white berries. It also included *Figi*, a type of medicine contained in a large seed; *Lulembe*, animal horns containing 'medicine', *Chufu*, two small knives; *Chago,* an ostrich egg; *Kibumbi*, a little stool; *Kisesegede*, the skin of a hedgehog; and, finally, special *Mifuko* gourds containing the ashes of burned plants. Each fetish required ceremonial dedication before becoming charged with the power to hear complaints. Some of these objects, such as *Chufu*, were common to every household. Other fetishes had a more community-wide significance and were housed collectively in a community shrine, where a custodian and his assistants protected them (Bravman 1998; Were *et al.* 1986; Merritt 1975).

Christianity started taking root and replacing the traditional beliefs and worship in the 1880s when the Europeans – Catholics and Protestants – started settling and developing mission centres in Taita. The first resident European in Taita, a Church Missionary Society member, J. Alfred Wray, established a mission at Sagalla in 1883. He had trouble in gaining confidence among the Taita, due to their strong traditional beliefs. This was aggravated by the traditional beliefs related to droughts and the hostility directed at him by famine-ridden Taita, who thought that he was the cause. This was during the longest remembered *Mwakisenge* drought, which is thought to have started in 1883, coinciding with the time when Wray established the Sagalla Mission. This prevented him from realising most of his goals, as the mission had to close in 1885. It was reopened in 1887 only to close again in 1890, after almost complete failure to take off. It was revived in 1895 after other European-inspired events had occurred in Taita, including the arrival of the Catholics, who established their

[12] Letter from R.G. Farrant, District Commissioner, Voi, 31 December 1912, Political Record, Taita District 1909-1974, Vol. II, DC/TTA/3/3, KNA.

mission at Bura in 1892. From then, Christianity extended its tentacles to various parts of Taita (Bravman 1998).[13] However, some of the traditional beliefs and witchcrafts are said to be still in existence. The local people are always wary, particularly during and after a calamity such as drought or even an accident. For instance, accidents often happen in the Josa area, along the Mwatate-Wundanyi road. To avoid them, the local people make a sacrifice every year of a ram at the black spot believed to have been a location of a *Figi*, which was demolished during the construction of the road. Another example, during the drought of 1984, is that inter-denominational prayers were held in Wundanyi at a site where traditional prayers and sacrifices were made. Elders conversant with the Taita traditional worship were involved in the occasion. Currently, some *Figi* are said to be secretly in use, such as one in Ron'ge area.[14]

Economic life

Traditional land resources

On the hills, for as long as the Taita can remember, land has been held individually and on a kinship basis. Once an ancestor of the present-day Taita arrived in the area and laid claims to tracts of land, no other person could claim the same land. However, there may have been attempts to raid other groups, which probably gave way to the development of the *Kichuku Kibaha* kinship political system with the *Mundu wa Figi* to protect the interests of its members and their sovereignty. Each *Kichuku Kibaha* functioned as a property-transmitting unit. At the household level, men owned the land and their wives were allocated plots for crop growing in different zones, with the husband moving between them. Wives also had gathering rights to water, fuel, grass for thatching and other items on the virgin land belonging to the *Kichuku Kibaha* (Mkangi 1983: 26-28). Land left by a man at his death could not be disposed of outside the *Kichuku Kibaha*, but had to be bequeathed to a person within the *Kichuku Kibaha*, usually a male member of the family of the deceased. Sometimes a new person, either a Taita from another *Kichuku Kibaha* or a non-Taita through *Mtero*[15] ceremony could

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[13] Pastor Naftali Ngoe of Maktau believes that the early missionaries worked for the colonial administrators, as they were the same people who killed their most renowned warrior, chief Mwangeka. They were also the same people who fed the local people with eggs and other exotic foods he could not name. Mwangeka was a warrior and seen as a leader for all Taita. Although they did not have a central government, Mwangeka would probably have been the first Taita leader to create a central political system. Using traditional medicine, he fought with the Maasai and protected the Taita as a whole. A man from Bura betrayed him by telling the Europeans how to counter the medicine which protected him. After he was killed, the people from where he hailed, Mwanda, ran away and in their confusion about the inefficacy of their traditional medicine, were lured into Christianity. Another known warrior was Mwambogo, who also used traditional medicine. He was tough and could acquire whatever property he wanted from other tribes by using force. Walo was another warrior known for his courage. He eliminated people who were believed to be bad in the society, such as sorcerers. He also eliminated the sick. He was lured to a beer-drinking spree, where he was thrown over a cliff to his death.

[14] Discussions with Pastor Naftali Ngoe, Mary Mutua, Mwenjewe, Mwangombe and Mwanyumba at Wundanyi in March 2000.

[15] *Mtero* is a blood covenant, used traditionally to make a 'blood brother' by initiating non-Taita into becoming Taita (interviews with Pastor Naftali Ngoe 24 February 2000).

also be allowed to inherit land. This factor served to intensify political unity and loyalty among *Kichuku* members (Merritt 1975: 87).

Generally, each *Kichuku Kibaha* covered all the possible varieties of land, stretching from the hilltop to the plains. This meant that each *Kichuku Kibaha* had land on the hill, on the slope and the flanks of the hill and for a few kilometres into the plains. In this respect, the land-use pattern was reflected by the *Kichuku Kibaha* and/or land owned by a particular family. Each *Kichuku Kibaha* had land with a general shape of a strip running from the hill to a few kilometres deep into the plains, beyond which land was free for anybody. The land in the plains was, in most cases, also used by other ethnic groups, particularly the Maasai.

Historically, land shortage in one area was mitigated by emigration and/or by renting the use of land in another area. Traditionally, sugar cane and, especially, sugar beer (referred to as *Denge*) was very important in these land transactions. Mr Marchant, District Commissioner of Taita District stated: 'Permission to cultivate another's land is usually obtained by payment of a quantity of sugar beer ...' (GB-KLC, 1932-1933 Vol. III: 2732 in Nazzaro 1974: 76). However, the making of sugar beer became illegal, unless licensed under the African Liquor Ordinance of 1930. With the loss of beer transactions, the Taita changed towards a cash economy, which was not favourable to them during the colonial era. Consequently, it became difficult to ameliorate the problem of land shortage, which was becoming serious because of population increase in the hills. However, screwing up their courage, the Taita began to move within their territories to the plains, breaking some of their taboos associated with the plains. Later, they moved further away, where settlements developed such as Maktau. Currently, after the colonial period and in independent Kenya – a period of over 100 years – the scenario of land and land use is very different, with the presence of various institutions operating under various policies, rules and laws, a scenario described as legal pluralism by anthropologists (Meinzen-Dick and Pradhan 2002).

Production and consumption patterns

The traditional Taita production and consumption pattern is agriculturally based. The Taita are mainly agriculturalists, but also keep cattle, goats and sheep. In the pre-colonial era, cattle, goats and sheep were mostly kept for their social and ritual practices, which have waned considerably. However, arable land has always been scarce, necessitating very careful management systems, involving the employment of 'sophisticated traditional' agricultural and animal husbandry techniques. The Taita recognise three distinct types of cultivation: dry land or hillside cultivation, lowland cultivation and cultivation by irrigation. In order to maximise production and ensure food security, most households practised the three types of cultivation. The uncultivated land and any other land that was previously cultivated, but left fallow, served as grazing land. Irrigation, an agricultural practice thought to be recent and foreign, has been practised by the Taita people for as long as can be remembered. There are, however, no traditional stories about its origin (Hobley 1895: 550 in Harris and Harris 1953: 108), but it is certainly one of the techniques to ensure sustenance in times of scarcity and in a situation of scarce arable land.

Each household required land suitable for the three types of cultivation and for various crops, grazing and the homestead. Ease of access to farmland, water and firewood resources determined the location of the homestead, but it was always built on the hills for security

reasons. However, depending on the relationship of the dwelling sites to other land and the availability of various kinds of land, different settlements and cultivation patterns were found (Harris and Harris 1953). Many families were both pastoralists and cultivators, and their settlements exhibited characteristics of both kinds of organisation.

The crops grown by Taita since the early 19th century are basically maize, beans, cow pea, cassava, sweet potatoes, millet, bananas and sugar cane. Maize has always been the main staple food. The main agricultural implement is the hoe, the others being digging and planting sticks and the axe. The traditional pattern of labour division between the sexes is that men do the clearing of land and women the cultivation, planting and weeding. Harvesting is traditionally done by both sexes, but cattle herding is almost exclusively the prerogative of men and boys. Traditionally, agriculture did not involve the transplanting of the entire household, not even for a transient settlement. However, as population densities increased in the hills, more and more people used the plains for grazing. A pattern of cattle movement, very similar to transhumance, evolved in Taita, the major stimulus for which was availability of water.[16] In very dry times, cattle were moved uphill to take advantage of orographic precipitation in the hills.[17] When the rains were quite heavy, the cattle often moved as far as twenty miles out into the plains to graze. It was quite common during pre-colonial times for one family head to take his sons and drive cattle to the plains. In some cases, the family head also settled one of his wives in the plains, where she also cultivated a small plot of maize and beans (Harris and Harris 1953). Ideally, this arrangement allowed the family to accumulate wealth in cattle and to be self-sufficient in plant food production. This pattern of land use also took environmental risks into account.

Before game hunting was prohibited for the natives in the colonial era, it traditionally played an important role in Taita livelihoods. Males would periodically visit the plain to obtain fresh game meat. Slaying or capturing the animals was done using the bow and poisoned arrows, game pits and snares. The wild animals and fowls that were hunted by the Taita people included the elephant, rhinoceros, giraffe, eland, zebra, buffalo, dikdik, hippopotamus, oryx, waterbuck, oribi, reedbuck, Grant's gazelle, Thomson's gazelle, duiker, bushbuck, lesser kudu, coke hartebeest, impala and warthog. The carnivores included the lion, cheetah and wild dog. Stories of the elephant as narrated by the elderly interviewees indicate that, traditionally, the Taita did not hunt the elephant.[18] They regarded the killing of an

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[16] This system of movement triggered by moisture availability is also experienced with wild animals, especially the elephants, which come to the foot of the hills for water and greener pasture (see figure 9.1). However, it is important to note that these movements of the elephant could also have been caused by other factors, such as persecution deep in the Tsavo plains when poaching for ivory was intense (Njogu 1997).

[17] Orographic precipitation is caused by humid air being forced to rise up the slopes of the hills, as a result of which the air cools down and condensation occurs. Thus, these clouds are a source of precipitation on the windward side of the hill.

[18] Stories about the Taita hunting the elephants are mainly based on the ivory trade and other circumstantial evidence. The earliest information positively connecting the Taita to the ivory trade comes from Guillain, whose informant mentioned pits in the ground in the vicinity of Taita, '…hollowed out by the inhabitant … to catch elephants.' (Guillain, Documents sur l'Histoire, p.284, in Merritt 1975: 206). The other circumstantial evidence is derived from Rebmann's 1848 report on seeing several pits and noting the availability of ivory in Bura and plenty of elephants to hunt around Taita (Merritt 1975: 207). However, Merritt's (1975: 208-209) interviewee indicated that Wasi men spend most of their time hunting and are responsible of most of the ivory and rhino horns sold by the Taita. The interviewee indicated further that hunting was not

elephant as murder and whoever did so, had to undergo a purification ritual.[19] Birds hunted included guinea fowl, partridges, francolin, grouse, ostrich and the marabou stork.[20]

In addition to hunting, the gathering of wild plant products both from bushes on the plain and the hill forests was also a very important occupation, which is still being practised at a limited level. However, it has waned considerably because of forest loss and changes in the land tenure system. These products included almost every part imaginable of a plant, such as leaves, twigs, branches, back, stem, latex, flowers, fruits, roots and tubers. The use is as diverse as the parts and reflects to some extent the diversity of the wild plants. The products are used for medicines (human and veterinary), witchcraft, food (vegetables and fruits, sap beverage, spices), insect repellents and insecticides, detergents, wooden beehive, roofing material, timber for construction, fibres, boundary landmarks, water channels or pipes etc., etc. Honey was and still is an important commodity in the Taita livelihood. Traditionally, wild honey was harvested and supplemented with honey collected through human effort from beehives set in the hill forests and in the bushes of the plains.

Raiding

Raiding has been and still is mostly an activity enshrined in the cultures of the pastoralists. The Taita, too, preyed upon each other and upon their neighbours in less affected locations during droughts, in order to survive. They also raided other communities to obtain what they needed and wanted, but could not acquire through external trade. Acquisition of livestock was the main objective of these raids, though women and children were also captured. The livestock were needed to satisfy various internal demands and could easily be exchanged for other goods. Attempts to raid the Taita were not easy, because of their topographic advantage, which provided security and suitable strategic points to counter any troops of raiders. However, as was noted above, the Maasai and Kamba raided the Taita on their home ground, and many times while they were grazing in the plains. Nevertheless, the Taita had to reclaim and replenish their stock by the same means. Up to the present time, cattle raiding, especially in the Kasigau area by the Maasai from Tanzania, is a serious problem that has devastated some individuals and ranches, particularly Kasigau ranch.

Trade

The Taita traditionally traded locally within the confines of the larger lineage or neighbourhoods. However, such trading was limited, since there were no significant differences in skills and products at the household level and even between lineages and neighbourhoods. The limited local trade was mainly for agricultural produce, livestock, game meat and handicraft

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restricted to the Wasi, for anyone who wished could hunt elephants and rhinoceros. Contrary to the circumstantial evidence, the interviewee '*argued vehemently that elephants were only killed with bows and arrows*,' as they were too clever to step into a pit (Merritt 1975: 209, footnote 88).

19 Interviews with Simon Zenge Mwafula, born in Mwarungu in Dabida and residing in Kishushe since 1957 when he was about 30 years old and Pastor Naftali Ngoe, born in the 1920s in Dabida (Mgange area) and now residing in Maktau since when he was only 5 years old. More insight was obtained through group discussions.

20 'Game' Political Records – Taita District 1913-1925 Vol. I, DC/TTA/3/2, KNA.

articles such as beehives, mortars and pestles. Only pottery and iron smelting appear to have transcended internal trade at the local levels (Merritt 1975).

The Taita cooperated mutually with the Kamba and other groups, such as the Pare and Shambala (Shammbaa) in trading caravans as well as raiding. Krapf, Thomson and Rebmann (in Nazarro 1974: 64) mention caravan traffic in which the Taita were involved. There were, of course, items desired by the Taita other than food and cattle, the supply of which was guaranteed by trading with other communities. For example, the Taita and some other groups, such as the Kamba, Ndorobo and Kikuyu, preferred a specific wood for bows, the *Dombeya* species. These tribes, particularly the Taita and Kikuyu, refer to this wood species as *Mukeu*. This indicates that the Taita were probably dependent on external sources for this wood, as it was not available in their own land (Merritt 1975). The Taita also cooperated and traded with the coast, at least before they were referred to by the name 'Taita'. Initially, trade with the coast was done through the Mijikenda intermediaries who, in turn, dealt directly with Swahili, Arab and Asian merchants in the coastal towns. The trade involved the exchange of ivory, rhinoceros horn and livestock conveyed to the coast by the Taita for beads, wire and cloth. The demand for ivory increased in the 1820-50s, which resulted in increased caravan trade journeying to Taita and beyond. At the same time, clove and other agricultural industries expanded on the islands of Pemba and Zanzibar, demanding more labour, which was supplied by slaves. With the increase of caravan trade to the interior, the Taita no longer needed to travel to the coast for the coastal goods. This was specifically the result of the strategic location of the Taita hills on the caravan route, where it was crucial for the caravan to stop over for water and food before proceeding further. The caravans brought with them coastal items to barter at various points *en route* to the destination. Consequently, these trading points developed into market centres, such as Voi and Mwatate (Bravman 1998).

The advent of the European and impact on traditional entitlement structures

Europeans, particularly the missionaries, started arriving in the 1840s and were followed later by private companies and the British colonial government administrators (if they were not one and the same). These groups interacted with each other and with the local communities. Following the first contacts between the Taita and the European missionaries, private companies and colonial administrators – all of whom are treated hereafter as colonialists – traditional land use changed. Specific features derived from these interactions have been preserved in the Taita entitlement structure. The main land-use changes and their impacts on the Taita entitlement structure will be highlighted below.

The colonialists

There were two main groups of missionaries: the Protestants under the Church Missionary Society (CMS) and the Catholics. The Protestants, most of whom were also explorers, were the first to arrive in Taita. The first European to visit Taita, an explorer as well as a Protestant missionary, was John Rebmann in the late 1840s, after which several others followed. However, J. Alfred Wray, who was more of a missionary than an explorer, settled in Sagalla in early 1883. He was the first European to settle in the midst of the Taita. Wray was a

member of the CMS, dominated by British Anglicans with a few European Protestants, such as Johann Ludwig Krapf (Nazzaro 1974).

The Catholics arrived in Taita in the late 1880s and, by 1892, Bura Mission had been established under the Holy Ghost Fathers. Later on, the missionaries, both Protestants and Catholics, established themselves in other places within Taita hills, from where Christian doctrines and 'western' influence spread, altering traditional entitlement structure. Besides obvious differences in doctrine between Catholics and Protestants, there was also a divergence in mission philosophy. Protestants in general believed in pure religious enlightenment, while the Catholics believed in both religious enlightenment and vocational training (material wellbeing). For the two groups to achieve their objectives, they alienated land for building their centres and for other uses, particularly agriculture. However, the levels of land requirement were different because of differences in activities. The Catholics needed larger areas of land for both vocational training and religious enlightenment (Nazzaro 1974).

The first large parcel of land alienation was 1,000 acres by the Holy Ghost Fathers (Catholic) in Bura, where the Bura Mission was established. The land was bought at a price of RS 1,000 (RS refers to Rupees, which were the coinage of East Africa at the time). The second major parcel of alienated land was 1,288 acres in the Taita hill by the Protestant CMS. The Industrial Missions Aid Society (IMAS), a quasi-official arm of the CMS (Wundanyi Mission), alienated it after demarcation by Rev. Maynard in 1903. Rev. Maynard in 1933 at the level of Venn Archdeacon justified the alienation as a step in helping the CMS in its work to help natives to improve their cultivation (GB-KLC, 1932-1934: 320). Later, both the CMS and the Catholics developed other mission centres in Sagalla, Kasigau and Ndara. Other land alienated by the missionaries included Wusi Mission (CMS), Mbale Mission (CMS) and 90 acres that Rev. Verbi purchased at Ngerenyi in 1904 for 900 or 1,000 Rupees (GB-KLC 1932-1933 Vol. III: 3303).[21] On Verbi's land (private), he grew coffee, diverting water from a community stream for irrigation purposes, an issue that caused resentment among the Taita (Nazzaro 1974).

The tenure of the IMAS was relatively short, in that the title was transferred to a private company, the East African Industrial Ltd. (EAI) in 1906, which had been formed earlier, in 1904, by Mr Victor Buxton. The main justification for its formation was to provide employment for the mission's (CMS) industrial trainees (Nazzaro 1974: 86). The EAI did not in a real sense assist the Taita, as no African was allowed to grow coffee until 1946, yet EAI grew coffee commercially. The impact of both IMAS and EAI Ltd was largely negative. Later, the EAI Ltd. transferred the title of the parcel of land to Wundanyi Ltd, which was also a private company (Nazzaro 1974).

The Holy Ghost Fathers at Bura first introduced coffee growing in Taita in 1892. Africans were not allowed to grow coffee on the grounds that '... native-grown coffee would lessen the confidence which the coffee buyers possess in the Kenya markets ...'[22] The Taita asked to be

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[21] Great Britain, Kenya Land Commission: Evidence and Memoranda, Vol. III: 3303; Kieran (1971) 'The origin of commercial Arabica coffee' and Great Britain, Report of the East African Commission, London: HMSO, 1925: 152, in Nazzaro 1974: 84-87.

[22] Great Britain, Report of the East African Commission, London: H.M.S.O., 1925: 152, in Nazzaro 1974: 84-87.

allowed to grow coffee in 1925, but were denied. The request was finally acceded by the government for Bura area in 1946. The Taita were, however, frustrated and unable to compete with the settlers because of discriminatory legislation. Nonetheless, even the rights of cultivation or use of the land were a problem. Through an apparent lack of communication between the Europeans who alienated the land and the Taita who lived on or near the plots, an argument over rights of cultivation persisted (Nazzaro 1974: 86-87).

Essentially, the Europeans were by then protected by the colonial regime. During the colonial period, many changes in traditional entitlement structures were witnessed, as both the colonialists and the native people struggled against each other to achieve antagonistic goals. For the colonial administrators, the starting point was to penetrate and alter the traditional systems of leadership in order to achieve their egocentric interests (Coupland 1939). In this respect, the British administrators appointed chiefs from the African communities (Nottingham 1965) without consulting or following the traditional ways of appointing chiefs and leaders, thus replacing strong traditional leadership systems with weak and susceptible systems. The appointment of chiefs and the other activities of the colonial administrators were largely facilitated by the missionaries either directly or indirectly. For example, it was easy for the colonial administrators to appoint chiefs and headmen, as the missionaries had weakened the traditional beliefs and practices, including those which served to protect the sovereignty of the communities. It is no wonder that the appointed chiefs were able in time to gain more culturally perverted powers to the extent of totally overshadowing those who might have become chiefs under the traditional system.

In the 1920s, the colonial government established a policy of separate development for the whole country, including Taita. During this period, the European farmers in Taita, including the missionaries, began substantial land clearance in the alienated high potential land and introduced intensive mixed farming, plantation cropping and commercial livestock husbandry. Meanwhile, the 'African or Native Reserves' were languishing in confusion and dire poverty instigated by the repressive colonial policies. In particular, the changes in livelihood, coupled with the compression of the local people into smaller areas, induced high population densities leading to environmental degradation and loss of means of sustenance. The native population should probably have taken the initiative to improve their reserves, but unfortunately, the Europeans had appointed local leaders as chiefs or headmen who, although they had power over their own people in favour of the colonialists, had little control over their areas. The colonialists thought that the natives were incapable of running their own affairs and could therefore not be entrusted with authority. As a result, the Native Reserves were underdeveloped and exploited as a source of labour. In addition, the natives had no capital resources to develop their areas, as they were not allowed to produce cash crops. Yet, their only income was the meagre wages through employment made necessary by heavy and compulsory taxation (Nottingham 1965).

The colonialists also initiated positive changes, particularly in the areas of literacy and political ideology. In this respect, not all the traditional practices can be regarded as positive. For instance, the Taita traditionally are known to have practised a lot of witchcraft, though it was sometimes branded as an exaggeration intended to intimidate their neighbours. It has

Box 5.1
Major land alienation for private use and related conflicts during the colonial era

Missionary societies

Roman Catholic missionaries
The Roman Catholics in Taita were interested in both religious enlightenment and material wellbeing and thus needed more land than the Protestants. On the arrival of the Holy Ghost Fathers in Taita in 1892, they established the Bura Mission on 1,000 acres alienated in Bura. There was resentment over the alienation of this land. The displaced people went to the lower parts of Bura where they grew sugar cane for a local brew (*denge*). This beer was used in land transactions.

The Church Missionary Society (CMS)
The CMS was mainly interested in religious enlightenment and so needed less land. However, in 1903, the Industrial Mission Aid Society (IMAS) of CMS alienated the largest parcel of land, amounting to 1,288 acres, for establishing the Wundanyi Mission in the hills. Bishop Peel, acting as Director of IMAS, offered to compensate the affected Taita, but this was not done (Nazzaro, 1974: 85-86). This was not in accordance with the Crown Land Ordinance of 1902, Section 30. Late in 1906, the land was transferred to East Africa Industries Ltd (EIA), a company formed in 1904 by Victor Buxton. The alienation of this land caused a lot of resentment among the Taita in Wundanyi. Other lands alienated include land for the Wusi Mission (CMS), Mbale Mission (CMS) and 90 acres bought by Rev. Verbi.

Private companies

Wundanyi Ltd.
The land transferred from IMAS to EIA, situated in the middle of the Native Reserve, was later sold in 1916 to a company called Wundanyi Ltd. Nazzaro (1974: 93) indicates that the '*transactions were more 'paper' than actual, as the purchaser and seller had the same address in London*'. Wundanyi Ltd leased the land in 1922 to Major Dru Drury for ten years. He had direct conflicts with the Taita, as he was accused of evicting some Taita people and uprooting their crop. During this period, there was intense resentment over the alienation of the land.

Sisal estates

Kedai Estate
The major source of conflict was the diversion of water. The alienation of land occupied by the Kendai appeared to have conflicted marginally with Taita occupation, as it was on a drier side of Dabida hill. However, sisal farming as a land use conflicted with herding of cattle by local people and removed the grass upon which they had earlier grazed. Nevertheless, it provided employment, though not essentially to the Taita people.

Taita Concessions Ltd
The company was engaged in sisal farming in Voi and south of Mwatate. It began its operations in 1927 with leased land of about 36,184 acres. The company displaced the Taita people who had settled in Mwatate. The Kasigau people who had settled there were moved back to Kasigau.

Voi Sisal Estate
The establishment of the Voi sisal estate did not displace local cultivators, although a few were displaced in the company's attempt to secure land near Voi River. However, there was resentment over land alienation to non-Taita.

since been eroded by the spread of Christianity and literacy. Literacy and political enlightenment have played a critical role in shaping contemporary Taita society. However, it is undeniable that some colonial institutions, policies and laws, some of which were inherited wholesome by the independent government, are repugnant and detrimental to economic development and environmental conservation goals in general.

The demography of Taita

The administrative bottom-up structure from village, sublocation, location and division to district level forms the area coverage for demographic analysis. Administratively, Taita Taveta district is divided into five divisions, 15 locations and 54 sublocations. These divisions are Wundanyi (701.9 km^2), Mwatate (1,766.1 km^2), Voi (3,015.3 km^2), Taveta (645.4 km^2) and Tausa (318.9 km^2). Tausa is a new division carved out of the others in the mid-1990s. In terms of representation in Parliament, the district has four constituencies, corresponding with the four administrative divisions before the fifth division (Tausa) was created. For local government, there are three authorities: Taita Taveta County Council, Voi Municipal Council and Taveta Urban Council. Another important area coverage, often not clearly represented under any of the above systems is that of the Tsavo East and West National Parks, which fall almost exclusively under the jurisdiction of the Kenya Wildlife Service. Indeed, the Tsavo National Park (Tsavo East and West) has always been considered separately for census purposes. It covers about 62% of the total area of the district.

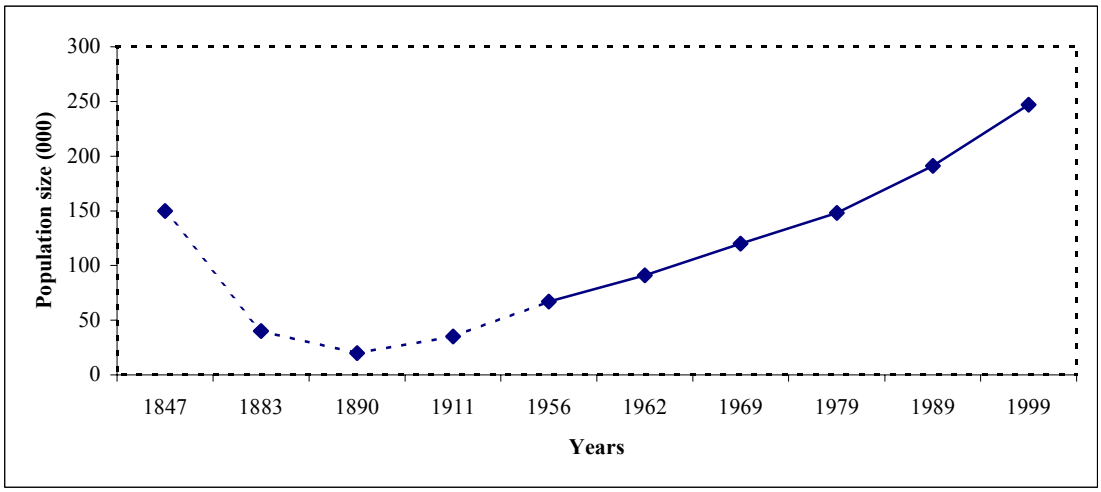
Human population size and trends

There are population estimates for Taita Taveta for as early as 1847. However, those before 1956 are manifestly conjectural and very unreliable (Figure 5.1, dotted section). Estimates for 1956 are reliable, but they became more reliable from 1962, when the first national census was carried out in Kenya.

John Rebmann (1847), basing his figures on a visit to Kasigau and on hearsay, thought that the entire population might number as many as 150,000. This figure seems to be very high and unrealistic, as a decrease from 150,000 people to 20,000 people in a period of 53 years is unlikely. However, there could have been a significant decrease caused by calamities such as famine and diseases. Droughts are the most feared disasters in Taita, but there are no records before the 1880s. The drought that most elderly people talk about is referred to as *Mwakisenge* and may have coincided with human and livestock diseases particularly rinderpest at the turn of the century. The exact date of the drought is not known, but it seems to correspond with the time of lowest population size. Joseph Thomson experienced it on his way to the coast in 1883, while Alfred Wray was seriously affected during his stay in Sagalla, and Hobley during his visit to Tsavo and Hanford during his stay in Frere town witnessed the devastation caused by the drought (Nazzaro 1974). It seems as if the drought of 1883 continued or that there was a break, followed by another severe drought between 1897 and 1900. Whatever the case, the 1897-1900 drought is well known, as many Europeans also witnessed it (Nazzaro 1974). There have been several droughts since 1900 that have been witnessed in Taita, but not any serious ones warranting bitter memories like the Mwakisenge

drought. However, two droughts in 1961-1962 and 1970-1972 are well documented, particularly in the history of the elephant population in the Tsavo area. These two droughts, together with the human factor, led to the elephant population crash (Njogu 1997). These other droughts did not, however, severely affect the human population. Since 1890, the population has increased steadily from about 20,000 people to about 246,000 in 1999.

Figure 5.1
Taita Taveta district population trend



Sources:

1847	John Rebmann, basing his figures on a visit to Kasigau and on hearsay, thought that the entire population might number as many as 150,000[23]
1883	Alfred Wray estimated the Taita to number between 30,000 and 40,000[24]
1890	Estimates placed the population figures at less than 20,000[25]
1911	Census, based upon house count, estimated population at 35,000[26]
1956	Census, based upon house count, estimated population at 66,791 (Taita only) and total 73,723[27]
1962	The population on or around Dabida was 80,032, for Sagalla 7,462 and Kasigau 3,798; total 91,000 (RoK 1966)
1969	The total population was about 111,000 (RoK 1970a)
1979	Female 75,379 and male 72,218; total 147,597 (RoK 1981)
1989	Females 105,420 and male 101,853; total 207,273 (RoK 1989)
1999	Female 123,342 and male 123,329; total 246,671 (RoK 2000b)

[23] Journal of John Rebmann to the secretaries of Church Missionary Society, 27 October 1847, Church Missionary Society London.

[24] Letter from J. Alfred Wray, Sagalla, 10 January 1884. The Church Missionary Intelligencia Vol. IX (new series, London 1884) CMS: 641.

[25] Synopsis of information on the British East Africa Protectorate and Zanzibar, revised in the Intelligence Division, War Office, December 1900, London 1901.

[26] G. S. Child (1956) 'General Information Register, Population Figures' 9 October 1956 ADM 8/2/178 District Office, Wundanyi.

[27] *Ibid.*

Apart from the drought, in the waning days of the 19th century, locusts, rinderpest, cholera, jiggers, smallpox and other epidemics profoundly destabilised African societies. Human and animal populations declined. Rinderpest alone contributed to the loss of up to 90% of all large livestock. For cattle-keeping societies, this loss was catastrophic. The diseases also affected the Taita people, but what they remember most is the Mwakisenge drought. They seem not to have noticed the 'great rinderpest pandemic' of 1889-1900 because of the drought. Curiously, the main authors of the history of the Taita (Merritt 1975 and Nazzaro 1974) did not mention rinderpest. However, Hobley, (1929), writes " upon our arrival at Ngomeni we found the people in terrible state of depression, for the rinderpest epidemic, which, as I have already described, was decimating the buffalo and other game in the Tana valley, had recently attacked their cattle".

In the population history of the Taita, locust contributed to the devastations of the drought. Merritt (1975: 119) indicates that the 1897-1900 famine would have ended a year earlier had it not been for the arrival of locusts in early 1899. In the same period, the infamous jiggers appeared in Taita. The traditions claim that the jiggers were brought to Taita by railway constructors. Other diseases in Taita associated with railway construction include various kinds of plague, smallpox and venereal diseases (Merritt 1975: 121). Smallpox, which also erupted in the same period, is well remembered, as it exacerbated an already disheartening situation. A cholera outbreak in 1876 killed many Taita, who were already devastated by famine as a result of droughts (Merritt 1975: 96-98). Further decrease of the population resulted from the migration of some Taita people to other places, especially to coastal areas. Some were also captured, particularly by the Kamba people, and sold as slaves (Merritt 1975: 108).[28] Table 5.3 presents a summary of calamities that may have affected the human population in Taita. Other important historical events are also included.

In terms of population structure, the 1969, 1979, 1989 and 1999 diagrams show the same shape of a broad based pyramid, with over 58% of the population below the age of 20 years in 1989 and 53% in 1999 (Figure 5.2). This structure generally depicts a fast growing population. People over 60 years old make up 3.6% and 4.6% of the 1989 and 1999 populations, respectively. There are several deductions that can be made from the population structures of 1989 and 1999. The dependence level is high due to the high percentage of youthful population; the percentage of youthful dependants is decreasing, while that of old age is increasing, but at a far much lower rate. The population structure of 1999 is not a smooth pyramid, because 10-14 age group (14.3%) is larger than the 5-9 age group (12.9%). This observation could be related to a reduced birth rate resulting from family planning efforts, increased mortality caused by HIV/Aids or a combination of these and other factors.

The birth rate has nevertheless generally been increasing, while the death rate has fallen, thanks to better medical facilities and a general improvement in the standard of living. The annual birth rate in Kenya was 3%, 3.3%, 3.8% and 3.4% in 1962, 1969, 1979 and 1989, respectively. The situation in Taita is likely to resemble that in Kenya as a whole.

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[28] 'The Kamba nightly raided and captured women and children and sold them as slaves; the men, not being of any value were killed' (Merritt 1975: 154).

Table 5.3
Summary of calamities due to weather, and important historical events in Taita (1883-2000)

Period	Historical event
1883	Rev. Wray (CMC) settled at Sagalla
1889	First missionaries established the Bura Mission. Other missions established in Mbale (Maynard) 1904 and Wesu (VV Verbi) in 1905
1890-1900	Serious drought called *Mwakisenge,* and diseases
1900	Voi and Kidai sisal estates established; 1920 Taveta sisal estate established; 1928-29 Mwatate sisal estate established
1901	St Mark's Church built in Sagalla
1902	District Commissioner's office built in Mwatate (DC Mr Redia)
1916	- First train to reach Taveta after the construction of Voi-Taveta branch railway - Britons defeat Germans – all Germans in Taveta left
1917	- Strong earthquake in Taveta - Kasigau (Wakasigau) people moved to Malindi; 1929 some of the Wakasigau remain in - Mwatate; 1936 Wakasigau brought back from Malindi to Mwatate
1919	Cotton crop introduced in Taveta
1924	Heavy rain called first *Makanyanga*; locusts destroy crops in Taveta
1928	Locust control team starts working in Sagalla
1929-30	Wesu hospital constructed
1930	Heavy rains in Voi – *Makanyanga*
1933-35	Great famine generally, but rains experienced in Wundanyi *Makanyanga* (1934-1936)
1938-39	Serious drought
1938	Wataita from Wundanyi asked to move to Taveta, Kimorigho Irrigation Scheme (maybe because of the drought)
1942	Heavy rainfall experienced, especially in Taveta
1947	Wataita from Wundanyi asked to move to Shimba Hills. Only four people went
1943-44	Drought called *Nyangira* (Wundanyi people)
1948-50	Failure of rains
1951	Floods
1952	Road to Vuria mountain and radio repeater station built
1953-56	Drought
1959	Beginning of a severe drought
1960-61	Severe drought with torrential flood in 1961
1963	Plenty of rains
1969	Below average rains
1973-76	Severe drought
1979-80	Failure of rain
1983-84	Severe drought
1994	Drought
1998-2000	Drought

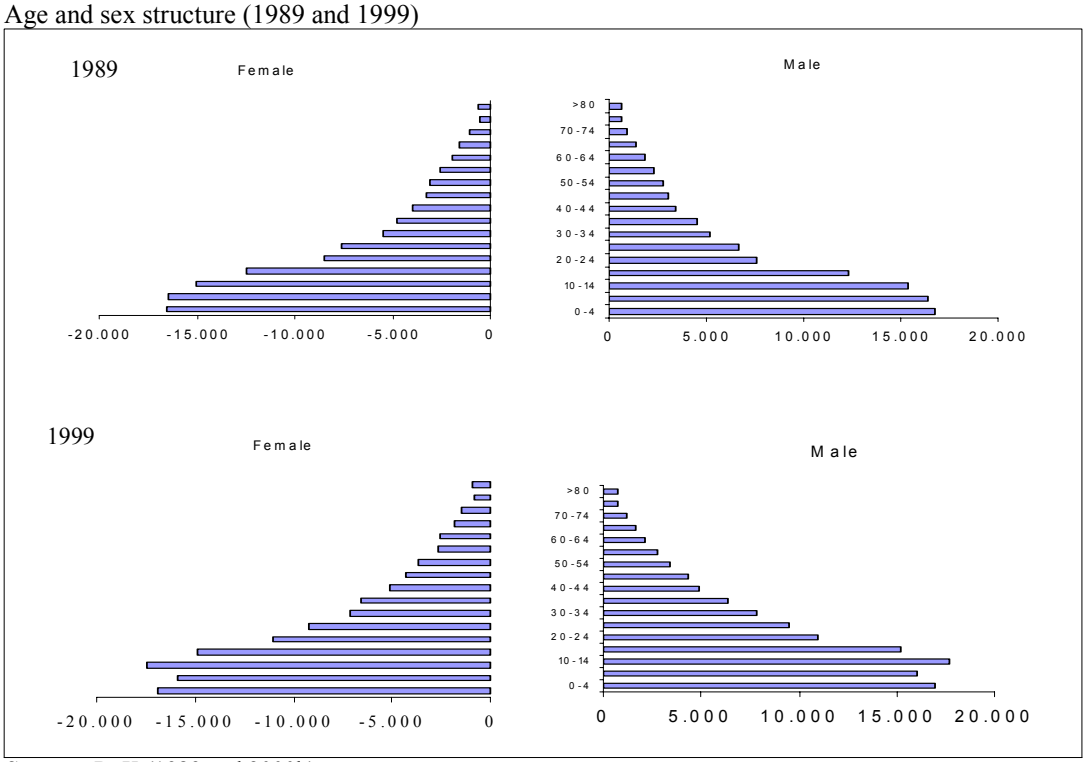
Sources: Nazzaro (1974); Bravman (1998); RoK (1989).

Distribution and density analysis for the years 1979, 1989 and 1999

Over 80% of the Taita Taveta population consists of rural residents who are mainly involved in farming. According to the 1989 population census, the population of the district was 207,273, with a growth rate of about 3.4% per annum. About 57% of this population was concentrated in Wundanyi and some parts of the Mwatate division. This can be attributed to the high agricultural potential of the respective areas. Voi, Taveta and some parts of Mwatate divisions consist of semi-arid land with limited agricultural potential. However, they present a

special case of population distribution and low density, particularly since large areas are covered by the park, sisal estates and ranches.

Figure 5.2
Age and sex structure (1989 and 1999)



Sources: RoK (1989 and 2000b).

Tables 5.4 and 5.5 show the population size and density at the division level for the years 1979, 1989 and 1999. However, the densities for the years 1979 and 1989 cannot be compared with the density for 1999, since Tausa division had not been created by then. If the area covered by the national park is excluded, the population density for the whole district was 37 people/km^2 in 1999 compared with 14 people/km^2 when the park is included. Voi division covers 81% of the total district area and is sparsely populated, with about 4 people/km^2 in 1999. This computation includes the area with national park status and would amount to about 20 people/km^2 in the same year, if the national park area is excluded. Taveta had the highest population density of 82 people/km^2 in 1999 and this figure would even be higher if the sisal estates were excluded from the density computations. However, it is worth noting that the sisal estate workers, who reside in camps within the estates, constitute a substantial portion of the total population.

Table 5.4
Population size and density by Division

Division	Area (Sq km)	% area	1979 Size	1979 Density	1989 Size	1989 Density
Voi	13,689	81	37,880	3	55,498	4.1
Mwatate	1,424	8	42,934	30	56,137	39.4
Wundanyi	1,166	7	40,921	35	54,223	46.5
Taveta	680	4	25,862	38	41,515	61.0
Total	16,959	100	147,597	9	207,272 [29]	12

Source: District Statistics Office, Taita Taveta Abstracts.

Table 5.5
Population by sex, number of households and density by Division (1999)

Division	Male	Female	Total population	House-holds	Individuals per h'hold	Area (sq km)	Population density
Taveta	27,304	25,734	53,038	12,346	4.3	645.4	82.2
Mwatate	27,784	28,581	56,365	13,862	4.1	1,766.6	31.9
Wundanyi	26,459	28,312	54,771	11,757	4.7	701.9	78.0
Tausa	9,922	10,353	20,275	4,610	4.4	318.9	63.6
Voi	29,764	29,725	59,489	14,135	4.2	3,015.3	19.7
Tsavo nat. park	2,096	637	2,733	925	3.0	10,680.7	0.3
District total	123,329	123,342	246,671	57,635	4.3	17,128.8	14.4
Excluding park	121,233	122,705	243,938	56,710	4.3	6,448.1	37.4

Source: RoK (2000b).

Apart from urban centres, some areas in the district – particularly Werugha location in Wundanyi division – have the highest human settlement, with as many as 552 people/km^2 in 1979 and 636.1 people/km^2 in 1999. This is due to the high agricultural potential of the area. For instance, the highest density of households is in Mteni Wundanyi, with 358.3 households/km^2. In the lowlands, household density is low. For instance, the density in Kishushe is 1.3 households/km^2.

The human population in Taita Taveta district is stabilising. The reasons include decreasing birth and mortality rates, migration, or a combination of these. The mortality rate has been decreasing as a result of better standards of living and better medical services. However, since the outbreak of the HIV/Aids pandemic, it is possible that both birth and death rates have been seriously affected.

With regard to migration, there are substantial movements which may significantly affect the population situation in Taita Taveta. There is immigration from Machakos, especially in the Taveta division. Immigration is also noticeable in the Kasigau area and Mwatate, mainly by mineral prospectors (particularly looking for gemstones) from other parts of the country. Other immigrants include sisal estate workers, who are mostly non-Taita. Most Taita people

[29] The total population for the whole district including the Tsavo national park in the year 1989 is 208,392. The density calculations exclude the 62% of the area of the district in the Tsavo National Park with a population size of 1,120.

argue that they cannot work for the sisal estates, because these estates are on land taken away from them by non-Taita during colonisation.[30]

Emigration to large urban centres, particularly Nairobi and Mombasa, in search of employment is common. Most of the emigrants (63.7% in 1989) are between 15 and 65 years old. The other large group, constituting 33.2% of the emigrants in 1989, are between 0 and 14 years old. In terms of marital status, single and married (monogamous) individuals contribute equally to the total number of emigrants. The net out-migration was 7,759[31] and 6,987, based on the 1979 and 1989 censuses, respectively.

Local movements to the town centres by people on transit from the rural areas of the district to Mombasa and Nairobi are also significant. Other common local movements are from densely populated areas on the Taita Hills to the sparsely populated areas in the lowlands. Traditional, seasonal movement to and from the lowlands for crop farming persists. People move to the lowlands during the rainy season to plant crops and during harvest time. However, movements and permanent settlement in the lowlands are more significant. Over time, people have settled in these lowlands. The areas of recent settlement include Mwachabo, Maktau, Mgeno, Mbulia, Kishushe and some parts of Kasigau. These movements to the lowlands are of great concern to wildlife biodiversity conservation, particularly because these settlers migrate with the high potential zones lifestyle, which increases pressure on available natural resources in the lowlands, leading to environmental degradation. However, the most critical is the occupation of areas initially used mainly by wildlife, which heightens human-wildlife conflicts.

Some socio-economic aspects of the Taita

Settlements

Wundanyi, Voi, Mwatate and Taveta are the main urban centres (Table 5.6). Wundanyi is located on Dabida hill and is the headquarters of Taita Taveta district. It is the main administrative town, where government offices for the district administration are located. However, Voi town, located in the lowlands along the Nairobi-Mombasa railway and highway is the largest urban centre in the district. It serves as an important stopover for motorists on the highway to Mombasa or Nairobi, a function it served during the slave trade and the transportation of goods, particularly ivory, from the interior to the coast for shipment. It is also an important market and transit centre. Agricultural products from Wundanyi, Taveta and other areas of Taita Taveta district are sold in the market, while others are transported further to Mombasa. Voi is also the main entry to the Tsavo East National Park. In addition to these functions, it has a variety of related businesses, such as hotels and restaurants, agro-veterinary services and supplies and hardware shops.

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[30] Group discussions in Maktau (18 February 2000).

[31] Rutten (1992: 76), Table 2.19.

Table 5.6
Urban population characteristics, by urban centre (1999)

Urban centre	Population: Male	Female	Total	House-holds	Individuals per h'hold	Area (sq km)	Population density
Wundanyi	2,201	2,347	4,548	907	5.01	7.7	590.65
Voi	12,603	11,799	24,402	6,818	3.58	102.4	238.30
Mwatate	2,056	2,301	4,357	1,145	3.81	10.9	399.72
Taveta Mjini	3,027	3,060	6,087	1,689	3.60	9.5	640.74

Source: RoK (2000b).

Mwatate is also an important centre located on the flank of Dabida hill, about 15 km from Wundanyi and 25 km from Voi and about 30 km across Tsavo West National Park to Taveta. It is an important stopover from Voi before ascending the Dabida hill to Wundanyi and the starting point of a rough road to Taveta. Taveta is a border town as well as an agricultural centre. The Taveta area is important for irrigation and the intensive farming of vegetables, grain crops and bananas. It is considered as the main agricultural area of Taita Taveta district, especially during dry years. Some of the agricultural products are transported to Wundanyi, while most are consumed in Voi and Mombasa. As a border town on the Kenya-Tanzania border, Taveta has many trade activities, both legal and illegal. There is a lot of movement across the border, trading in such products as paraffin, cloth and agricultural products. This centre is limited by its infrastructure, particularly transport and communication. The road from Mwatate to Taveta is dilapidated and almost impassable, especially during the rainy season.

There are many more small centres involved mainly in trade in various essential commodities, including agricultural products. Most of these are located along all-weather roads. There are also several frontier centres such as Maktau at the entry to the Tsavo national parks.

Housing

According to the 1999 census, about 74.1% of the households' main dwelling units are roofed with iron sheets, while 53.8% have walls made of mud and wood and 64.0% have an earthen floor (Table 5.7). What materials are used for construction depends on several factors such as availability, affordability, land tenure and location. For instance, in the hills, iron sheets and tin walls are not commonly used, as temperatures are usually very low, especially during the cold season. There are generally few houses with walls made of wood (0.9%) and those which have wooden walls are found near forests and are generally of very low quality. These houses usually have a roof of grass, Makuti or tin and an earthen floor.

Literacy

As in most parts of Kenya, the literacy level in Taita Tateva district is low (Table 5.8), although it has been increasing over time. In Taita Taveta district, 21.7% of the population of the age of 14 years and older has at least reached secondary school and 49.5% has reached at least standard 5 or upper primary school level. In terms of gender, females are disadvantaged, as they form the majority with a low level of education.

Table 5.7
Housing conditions (1999)

(a) Main types of roofing material for the main dwelling unit (number of households)

Material	*Iron sheets*	*Tiles*	*Concrete*	*Asbestos*	*Grass*	*Makuti*[32]	*Tin*	*Others*	*Total*
Number	42,717	1,038	249	1,043	10,072	916	1,266	334	57,635
%	74.1	1.8	0.4	1.8	17.5	1.6	2.2	0.6	100

(b). Main type of wall material for the main dwelling unit (number of households)

Material	*Stone*	*Brick/block*	*Mud/wood*	*Mud/cement*	*Wood*	*Iron sheet*	*Grass/reeds*	*Tin*	*Others*	*Total*
Number	2,010	16,751	30,999	5,237	495	787	932	49	375	57,635
%	3.5	29.1	53.8	9.1	0.8	1.4	1.6	0.1	0.6	100

(c). Main type of floor material for the dwelling units (number of households)

Material	*Cement*	*Tiles*	*Wood*	*Earth*	*Others*	*Total*
Number	20,374	208	83	36,887	83	57,635
%	35.4	0.4	0.1	64.0	0.1	100

Source: RoK (2000b).

Table 5.8
Literacy level by age and sex (1999)

Age group	None	Pre-primary	Primary school Std 1-4	Primary school Std 5-8	Secondary school Form 1-4	Secondary school Form 5-6	Univer-sity	Not stated	Total
5-9	3,488	15,774	10,773					1,858	31,893
10-14	1,432	1,647	20,474	10,724	103			752	35,132
15-19	1,147	274	3,863	17,097	5,572	4	3	2,028	29,988
20-24	962	88	2,031	11,571	6,515	17	74	315	21,573
25-29	995	75	1,711	8,897	5,953	69	234	209	18,143
30-34	1,044	73	1,592	6,508	4,594	320	206	105	14,442
35-39	1,553	77	1,904	5,048	3,430	317	125	103	12,557
40-44	2,129	68	1,899	3,176	2,119	142	71	97	9,701
45-49	2,294	70	1,871	2,823	1,195	101	45	83	8,482
50-54	2,517	64	1,816	1,861	581	34	33	74	6,980
55-59	2,269	47	1,556	1,079	266	17	27	45	5,306
60+	8,674	163	3,018	1,593	490	29	29	200	14,196
Male	9,863	9,558	26,823	35,456	17,281	785	630	3,025	103,421
Female	18,641	8,862	25,685	34,921	13,537	265	217	2,844	104,972
Total	28,504	18,420	52,508	70,377	30,818	1,050	847	5,869	208,393
Percent	13.7%	8.8%	25.2%	33.8%	14.8%	0.5%	0.4%	2.8%	100%
Cumulative	97.2%	83.5%	74.7%	49.5%	15.7%	0.9%	0.4%		

Source: RoK (2000b).[33]

[32] *Makuti* is a Swahili word referring to roofing materials, which usually include palm leaves, coconut leaves and sometimes reeds.

Economic activities

Over 90% of the population of Taita Tateva district depend on crop farming and about 80% keep livestock, of whom about 10% keep large herds of livestock on the communal grazing land and ranches. Farmers sell their products at the trading centres, mostly Voi and Mombasa. The immigrants, who constitute a substantial portion of the population, are employed on the sisal estates, while a few are employed in the mining industry, the public sector and Tsavo National Park. Commerce and industry are also important economic activities, particularly in the town centres. Industrial activities are mainly artisan, the so-called, *Jua Kali* industry.[34] Table 5.9 shows the proportions of the population from the age of five years engaged in specific areas of employment.

The figure given for unemployed people is unrealistically low. This is probably because most unemployed and economically inactive people indicated that they were involved in family business or farms; otherwise the unemployed would be more than 70%, excluding people below twenty years old. This would make the dependence level even higher.

From the household survey carried out in this study, we can distinguish three main groups of income generation: (i) wage labour in the public and private sectors; (ii) earnings from trade in industrial and farm products; and (iii) income that does not fall under wages or trade, such as remittances, periodic sales of farm crops or livestock, rent from leasing land, making and selling charcoal, and *Jua Kali* handicrafts.

Table 5.9
Number of people employed in Taita Taveta District, by age and sex (1999)

Age group	Wage labour	Unpaid workers		Unemployed	Economically inactive	Not stated	Total
		In family business	In family farms				
5-9	99	166	962	305	28,842	1,532	31,895
10-14	527	210	1,376	195	32,468	336	35,112
15-19	2,946	1,122	5,429	1,242	18,973	259	29,971
20-24	5,069	2,306	7,426	1,727	4,845	200	21,573
25-29	5,701	2,475	6,381	871	2,557	152	18,135
30-34	4,926	1,994	5,390	410	1,598	124	14,442
35-39	4,053	1,582	5,209	275	1,351	85	12,553
40-44	2,913	1,059	4,484	155	1,023	67	9,701
45-49	2,363	815	4,261	116	856	71	8,482
50-54	1,564	571	3,809	81	907	57	6,980
55-59	783	411	3,156	48	868	32	5,298
60+	1,299	823	8,104	259	3,538	159	14,282
Male	23,867	6,229	23,840	3,505	44,177	1,803	103,421
Female	8,376	7,309	32,166	2,179	53,671	1,271	104,972
Total	32,243	13,538	56,006	5,684	97,848	3,074	208,393
%	15.5%	6.5%	26.9%	2.7%	46.9%	1.5%	100%

Source: RoK (2000b).

[33] Table 5.8 and 5.9 do not include children below the age of five years who constitute about 15.5% (38,278) of the total population of the district, which is 246,671.

[34] *Jua Kali* is a Swahili phrase for 'hot sun'. Over the course of years, it has come to be used to refer to Kenya's informal or non-formal sector.

Wages

About 51% of the households have one or more members who earned a wage in the last five years (Table 5.10). Of these, 44.2% are husbands, 11.6% wives and 44.2% sons and daughters. During the survey of October 1999-March 2000, only 53.5% (27.2% of all interviewees) of the total wage earners in the last five years were still working, implying that 46.5% had left their jobs. With regard to place of work, about 83.7% work outside Taita Taveta district and the rest within the district. About 73.0% work in the public sector, while 27.0% work in the private sector.

Table 5.10
Wage earners in the household within the last 5 years and at least for a year (n = 169)

	Frequency	Percent	
Did not earned wages	83	49.1	
Earned wages	86	50.9	
Total	169	100.0	
		Overall (169)	Of 50.9%
Person(s) involved			
Husband	38	22.5	44.2
Wife	10	5.9	11.6
Children (sons and daughters)	38	22.5	44.2
Total	86	50.9	100.0
Currently (year 2000)			
Still working	46	27.2	53.5
Ceased to earn/not working now	40	23.7	46.5
Total	86	50.9	100.0
Place of work			
Within the district	14	8.3	16.3
Away	72	42.6	83.7
Total	86	50.9	100.0
Sector (government or private)			
Public sector	63	37.3	73.3
Private sector	23	13.6	26.7
Total	86	50.9	100.0

Source: Own survey (2000).

The average number of persons working per household in the year 2001 was one person per two households. Since the number of people per household is between four and six, including children, the ratio of people earning a wage is one person per eight to twelve persons. The average wage in the public sector in the year 2000 was about KShs 4,000-18,700 per month (K*ƒ* 2,400-9,300 or US$ 632-2,460 per annum), while average earnings in the private sector were about KShs 4,500-18,900 per month (K*ƒ* 2,900-9,400 or US$ 710-2,490 per annum).[35] This income cannot sustain a household of about 4-6 members, hence most

[35] K*ƒ* is Kenya pound, which is equal to 20 Kenya shillings. Current exchange rates for US$ is KShs 76. The wages depend on the category of employment concerned. http://www.eachq.org/; http://193.220.91.23/-eac_database/2002/database/kenya/Employment%20Earnings%20and%20Consumer%20Prices/Employment%20Earnings%20and%20Consumer%20Prices.asp

households are engaged in other economic activities, such as business, trade, farming and livestock keeping for both subsistence and for sale in local markets.

Business

About 40.8% of the household interviewees are engaged in business, of whom 37.7% sell their farm produce, 33.4% have shops (kiosks) and 5.8% trade in farm produce by buying from farmers and selling at market places within the district or in Mombasa town (Table 5.11). Others have a butchery (4.3%) or liquor bar (4.3%), trade charcoal (4.3%) or are involved in other forms of trade, particularly hawking. About 31.0% of the households of those engaged in trade have a second business, again mainly the sale of farm crops and livestock products. Although some of the households' wage earners are engaged in other

Table 5.11
Households engaged in business (n = 169)

	Frequency	Percent	
Engaged in business	69	40.8	
Not engaged in business	100	59.2	
Total	169	100.0	
		Overall (169)	Of 40.8%
First type of business			
Farm produce for sale (crop and livestock products)	26	15.4	37.7
Shop	23	13.6	33.4
Butchery	3	1.8	4.3
Liquor bar	3	1.8	4.3
Charcoal (buying and selling)	3	1.8	4.3
Agricultural product (buy and sell)	4	2.4	5.8
Second hand goods	3	1.8	4.4
Others *e.g.* hawking	4	2.4	5.8
Total	69	41.0	100.0
Second type of business			
Farm produce for sale (crop and livestock produce)	11	6.5	15.9
Shop	3	1.8	4.3
Hotel	1	0.6	1.5
Butchery	2	1.2	2.9
Agricultural products (buy and sell)	3	1.8	4.3
Others *e.g.* hawking	2	1.2	2.9
Total	22	13.1	31.8

Source: Own survey (2000).

Note: Farm produce in this case includes those products that are sold throughout the year or for most of the year, such as vegetables and milk.

income-generating activities, applying Cramer's V symmetric measure of association,[36] the households that earn wages are not necessarily the ones involved in business activities (Table 5.12). The strength of association between those earning wages and those involved in business activities is very weak. Hence, there is no significant association between the two income-generating activities.

Table 5.12
Symmetric measures of wage earning and engagement in business

		Value	Approx. sig.
Nominal by nominal	Phi	.081	.773
	Cramer's V	.081	.773
N of valid cases		169	

a Not assuming the null hypothesis.
b Using the asymptotic standard error assuming the null hypothesis.
Source: Own survey (2000).

Other sources of income

Remittance ranks first among other sources of income, catering for 36.7% of the primary other sources of household income (Table 5.13). As noted earlier, 83.7% of the wage earners work outside Taita Taveta district and send remittances home. Remittance is followed by periodic sales of livestock and livestock produce, which account for 34.9%. Periodic sales of farm crop produce rank third, accounting for 16.6%. For the secondary other sources of household income, periodic sales of farm crop produce rank first, accounting for 32.5%, followed by the periodic sale of livestock and livestock produce, accounting for 10.7% of the total households.

The assessment of rural household income generation indicates that every household has a source of income for sustenance and endeavours to maximise this through diversification in the agrarian and non-agrarian sectors. This tallies with the results of many other studies on rural development in Africa (Bryceson 1993). Although agricultural activities are mainly for subsistence, they dominate in income generation activities as well. As regards seasonality, incomes from agricultural activities come from two groups of products. First, there are those agricultural products which are produced and sold throughout or during most of the year, particularly vegetables and livestock products, such as milk. These are mainly produced in high agricultural potential areas. The second group consists of farm crops and livestock which

[36] Cramer's V is the most popular of the chi-square-based measures of nominal association, because it gives good norming from 0 to 1, regardless of table size, when row marginals equal column marginals. V equals the square root of chi-square divided by sample size, n, times m, which is the smaller of (rows - 1) or (columns - 1): V = SQRT(X2/nm). The Statistical Package for Social Sciences (SPSS) used in this analysis, reports the significance level of the computed V value. The formula for the variance of Cramer's V is given in Liebetrau (1983: 15-16). The coefficients of association vary from 0 (indicating no relationship) to 1 (indicating perfect relationship) or -1 (indicating perfect negative relationship).

Table 5.13
Other sources of income (n = 169)

	Frequency	Percent	
No other sources of income	6	3.6	
Have other sources of income	163	96.4	
Total	169	100.0	
		Overall (169)	Of 96.45%
Primary other sources of household income			
Remittance	62	36.7	38.0
Rent from land lease	3	1.8	1.8
Periodic sale of livestock and produce	59	34.9	36.2
Periodic sale of farm produce	28	16.6	17.3
Making and selling charcoal	1	0.6	0.6
Jua Kali handicraft	9	5.3	5.5
Herding	1	0.6	0.6
Total	163	96.5	100.0
Secondary other sources of household income			
Have second source of income	89		52.7
		Overall (169)	Of 52.7%
Rent from land lease	3	1.8	3.4
Periodic sale of livestock and produce	18	10.7	20.2
Periodic sale of farm produce	55	32.5	61.8
Sale of charcoal	2	1.2	2.2
Jua Kali handicraft	10	5.9	11.3
Herding	1	0.6	1.1
Total	89	52.7	100.0

Source: Own survey (2000).

are periodically produced and sold, such as maize and beans. These are grown in the lowlands and are commonly sold in bulk after harvesting. However, their supply runs through the year and the people involved are the intermediary traders. Livestock, particularly cattle and shoats in the lowlands, are sold periodically, e.g. once or twice in a year. However, this depends on when there is an urgent need for money to meet specific household needs, such as school fees, medical bills, social functions and construction.

Main environmental and socio-economic problems in Taita

The local communities are the centre of activities, both economic and in relation to the conservation of biodiversity within their localities. How they perceive local economic development, biodiversity conservation and stakeholders, such as government agencies and NGOs, is determined by the problems they face. It is therefore imperative to assess the main problems affecting economic development and the conservation of wildlife and forest biodiversity faced by local people in Taita.

With regard to spatial coverage and urgency, seven main problems were identified through the household survey and focus group discussions. These include, in order of urgency, water scarcity, food scarcity, wildlife menace, health problems, land shortage, soil erosion and environmental degradation or loss of biodiversity. Based on spatial coverage, wildlife menace is the most widely experienced problem, followed by food scarcity, water scarcity and health problems. Land shortage and soil erosion, which are equally experienced in terms of coverage

follow. The least widely experienced problem is loss of biodiversity. Table 5.14 depicts the ranking of the seven problems in relation to spatial coverage and urgency.

Table 5.14
Main problems experienced in Taita, their coverage and urgency (n = 169)

Problems	Coverage		Ranking in terms of urgency:						
	%	Rank	Rank 1	Rank 2	Rank 3	Rank 4	Rank 5	Rank 6	Rank 7
Wildlife menace	92.9	1							
Food scarcity	91.7	2							
Water scarcity	88.8	3							
Health problems	81.1	4							
Land shortage	79.3	5							
Soil erosion	79.3	5							
Loss of biodiversity	66.9	7							

Coverage is expressed in terms of the percentage number of households.
Source: Own survey (2000).

In this ranking, there are several key issues worth noting. Firstly, although a problem may be widely experienced in terms of coverage, it may not be the most urgent, and problems that are less widely experienced are area specific. This is the case for the first three problems *viz*. wildlife menace, food and water scarcity. Secondly, environmental degradation and loss of biodiversity, which is the least experienced in terms of both spatial coverage and urgency, may not be viewed as urgent, because the environmental services are not apparent to the local communities. However, soil erosion, which is ranked sixth in terms of urgency, may indicate the extent of environmental degradation. Finally, all these problems are interlinked. Land shortage in the hills has led to people moving to the lowlands, where they encroach on the park, while on the hills they encroach on forest reserves. These forests form the main catchments areas and once they have been degraded, the hydrological cycle may be affected. Forest degradation leads to less dew water, high runoff and soil erosion, less infiltration and spring water etc. Dew and spring water are the main sources of water on the hills and for the lowlands. In the same realms, encroachment on the forests and the occupation of wildlife dispersal areas lead to the degradation of biodiversity and increase conflict with wild animals, which tend to be confined within the protected area of the Tsavo National Park or (in the case of forest-dwelling animals) the forest. In the lowlands, vegetation has to be cleared for settlement and farming. As a result, soil erosion becomes a serious problem, since soils are fragile and runoff from the hills is high. Other problems include health problems and food shortage. Food shortage is due mainly to climatic factors, wildlife menace, land shortage and limited agricultural technology. Nonetheless, these problems generally relate to and indicate the level of poverty in the district. Indeed, poverty among the local population is a major problem.

Conclusion

The three topographically complex massifs of Taita, the Taita Hills (Dabida, Sagalla and Kasigau), have been occupied piecemeal through multiple small migrations and this has led to the establishment of communities, some of whom were sometimes hostile to each other, particularly because of conflicts over land resources. However, the immigrants maintained trade and social ties with distant ancestral areas, particularly in times of drought, and established new trading and migration links with other nearby societies across the bush savannah. Over time, these immigrants developed ways of interacting peacefully with each other and with the environment and gradually built up a repertoire of socio-cultural commonalities. One of these commonalities, and probably the most critical with respect to the entitlement structure, is where the land was owned, used and controlled through kinship, i.e. the kinship territories referred to as *Vichuku Vibaha*. It was on these territories that leadership was based, as there was no central leadership. Everything else, including traditional beliefs and religion, was coded to protect the sovereignty of the *Vichuku Vibaha*. The immigrants – differentiated in time – adapted themselves as they settled in the hills, defining the terms and issues of entitlements and social struggles, and formed the basis of social identities in relation to the environment, emerging as the contemporary Taita people. However, the incursions by the colonialists brought about fundamental changes in the traditional entitlement structure of the Taita people. Although the identity of the Taita people persists as an ethnic group, the traditional structure was slowly degraded and replaced with a colonial structure, currently being perpetuated by the post-colonial government.

With regard to demography, the Taita population has been increasing steadily from about 20,000-40,000 people to over 240,000 people in the century between 1900 and 2000. The implication of population growth is obvious. Human population pressure on the hills has not only constrained forest biodiversity conservation, but has also posed threats to the fragile lowlands. As a pressure release, people trickle down to the lowlands to settle there permanently. Historically, the Taita have been using the lowlands for hunting, grazing and 'wet farming'. The hills have been the main dwelling place for reasons ranging from high agricultural potential to safety and security compared to the lowlands. Currently, settlement in the lowlands is slow, but the implications are significant. In general, they include the subdivision and individualisation of land holding, limited grazing land and contraction of wildlife areas with expanding human settlement and farming areas, leading to increased human-wildlife conflicts. The specific environmental and socio-economic problems in Taita in descending order in terms of urgency are water scarcity, food shortage, wildlife menace, health-related problems, land shortage, soil erosion and, lastly, biodiversity degradation. The overall result is increased poverty and loss of biodiversity.

Nevertheless, the central factor in social adaptation is the response to scarcity and other environmental risks. Some of the adaptations are in the extremes of either specialisation or flexibility. Entitlement rights are pivotal in this spectrum, in particular, ownership, the use of land resources and intervention to resolve conflicting interests. Indeed, movement to, and utilisation of the lowlands, demonstrate some degree of socio-economic adaptation, which, under current entitlement structures, requires the involvement of various stakeholders in order to ensure wildlife and forest conservation, while meeting the needs of the local communities.

6

Entitlements: Land use and tenure

In this chapter, we discuss land use and tenure in terms of entitlement rights. Land is viewed as the basic resource through which biological resources – in this case, wildlife and forests – are owned, used, managed and contested. The chapter starts by discussing briefly land use and tenure in Kenya. It narrows down to analyse land use and tenure in Taita Taveta District. We then describe the present land tenure situation in Taita with the aim of identifying 'who owns which land and what use they make of it'. The rationale for the establishment and subsequent demarcation of the conservation areas (Tsavo National Park, existing and planned sanctuaries and various forest reserves) is also reviewed, with a focus on entitlement rights.

Land, land use and tenure

Land and entitlement rights

In general, 'land' is used to describe all natural resources over which people have specific rights and which may be used to yield an income. It includes farmland and building space, forests, pasture, mineral deposits, fisheries, rivers and lakes, as well as all resources freely supplied by nature which help to produce what is required to meet human needs and aspirations (Bruce 1994). Under the statutory laws, land is regarded as a single resource, to which there may be various rights, such as use and alienation. These statutes tend to emphasise individual rights and, therefore, private individual ownership. On the other hand, customary law regards land and its resources separately and tends to confer greater recognition on communal rights over these resources (Bruce 1994). Group rights or communal ownership are also rights private to that specific group.

Land is geographically fixed in terms of location and quantity; it cannot easily be adjusted to varying demand. However, it is of course true that coastal erosion decreases the supply of land and reclamation from the sea increases supply, but this only occurs to a limited extent. Land for specific uses can be increased or decreased simply by transferring it from one use to the other, but these transfers are limited by the fact that each piece of land has a unique set of natural

characteristics that makes it suitable for a specific type and nature of use. Land-use types are also determined by ownership regimes and/or access arrangements. Disputes related to land use have arisen at all levels, ranging from the family to the state level, where there are wars over territories. Land 'scarcity',[1] at the community level has, in most cases, led to serious social, economic and environmental problems. Scarcity can be caused by changes in climatic conditions, change in the nature of land, population increase and other social and economic changes, particularly those hinged on the policies, legal and institutional structures of the existing governance system. These are central as far as entitlement rights are concerned.

Land tenure is a matter of rights that are held on land and some resources on it. The word tenure is derived from the Latin word *tenere*, which means 'to hold'. Thus, tenure can be 'ownership' or 'usufruct' in the case of Western tenure (Bruce 1996; Juma and Ojwang 1996) or 'leasehold'. In essence, tenure defines the social relations between people in respect of objects, in this instance, land. Thus, the study of land tenure examines the nature and origin of rights, how they operate and how they relate to a multitude of resources on that land, such as plants, wild animals and water. In other words, tenure defines the methods by which individuals or groups acquire, hold, transfer or transmit land or specific rights over certain resources on it. Land tenure may include a variety of different rights in different combinations, depending on the type of tenure. In a nutshell, tenure is a set of rights, commonly referred to as a 'bundle of rights' which a person or a community or private or public entity holds in land and/or the resources on it. These rights may be transferred or transmitted, either together or separately, at the discretion of the holder, with or without limitations, depending on the rules of the specific type of tenure. Formal (both traditional/tribal and current) rules of tenure define the nature and content of property rights and determine how and under what conditions society will allow individuals or groups to hold property rights on land and other resources (Ogolla and Mugabe 1996). Therefore, land tenure is a matter of entitlement rights operating under legal pluralism. In this context, in independent Kenya, statutory laws which are based on colonial ideology, ought to support and complement the customary laws and not abolish them. Moreover, land tenure in Kenya is culture-specific and dynamic in nature.

Traditional land tenure is culture-specific because it is based on the social organisation, production and consumption patterns of a given community, which reflect, among other things, the ecological characteristics of the region (Bruce 1989). For instance, traditional precolonial Taita and many other African societies characterised by kinship-bound socio-political organisation, practised shifting cultivation and pastoralism. Thus, the traditional tenure systems' focus was to guarantee rights of access to the individuals or families and to invest relevant political entities with rights of control over allocation and use. These systems were dynamic in the sense that they responded to changing situations, particularly socio-economic and environmental changes. However, the incursions by the European colonialists occasioned drastic changes through the introduction of a centralised governance system. This was followed by burgeoning population pressure on limited arable land and the development of new land-use patterns. All these gave way to new land tenure systems, which are not clearly defined and are likely to be equated to the Tanzanian situation, which has been described by Bergin, (1998: 161) as 'a legal

[1] Scarcity in this case does not necessarily mean shortage or lack of land by virtue of it being a fixed or degradable resource, but also deprivation because of prevailing social and economic conditions.

quagmire'. Indeed, Kenya's land tenure system is a complicated legacy combining traditional, British colonial and capitalistic-inspired laws.

In the context of tenure dynamism and cultural specificity, it has become imperative to review the impact of tenure arrangements on sustainable use of natural resources. In essence, entitlement rights to natural resources need to be clearly defined to avoid land-related conflicts. In practice, the public and/or community and private divide has been narrowing down, giving way to a hybrid, which is analogous to communal land use and tenure (Grima and Berkes 1989). This tendency reflects the fact that land encompasses a range of resources, the scope and influence of which transcend private property boundaries. Some legal scholars, public officials, community development practitioners, donor agencies (Klaus and Binswanger 1999) and environmental activists now believe that separating ownership into 'public' and 'private' is neither useful nor accurate. They contend that, today, more than ever before, private rights are no longer exclusively private, nor public rights exclusively public (Geisler and Daneker 2000; Amman and Duraiappah, 2000). Singer (1996) contends that, in many parts of the world, land tenure is a mosaic of legal interests, conditional rather than absolute. He further argues that property and tenure, in particular, rather than being a bundle of rights residing in a single owner, are a series of separable rights often held by a 'bundle of owners'. Certainly, this is not a new arrangement; it existed among many traditional communities (Tumushabe 1999; Barrow 1996; Juma and Ojwang 1996). However, foreign anthropologists and colonial administrators, as well as some local ideologists have often misrepresented it (Mandivamba 1999).

Land tenure in Kenya

Formerly communal traditional/indigenous land-use and tenure systems in Kenya have been eroded and replaced with the colonial versions following the incursions by the European colonialists. It can also be argued that the traditional tenure systems dynamically evolved with changing social, economic and political circumstances and tended towards more inalienable individual rights as population pressure increased and agriculture became more commercialised (Mandivamba 1999). However, a critical analysis of the traditional tenure system indicates that it was a composite system, with clear freehold rights[2] usually for arable and residential land, as well as group rights for pastures, forest, mountain areas, waterways and sacred places, as illustrated for the Taita people in Chapter 5.

[2] There are two categories of land titling: leasehold and freehold. The latter is also referred to as absolute registration. Leasehold is land allocated for a limited period, which must be renewed on expiry of lease. If this is not done, the land reverts to the government. Sometimes, there may be an interest in reversion of land to the government or to the county council. Other conditions for leasehold include annual payment of rent and controlled development (Government Land Act Cap. 280). The titling of leasehold may be in the form of a government or county council grant, for which a grant certificate is issued under the Registrar of Title Act, Cap. 281. The grant certificate must have a deed plan reflecting, among other things, the size and shape of the plot. Usually such grants are for land within urban centres and towns. The other form of leasehold is issued under the Registrar of Land Act Cap. 300. In this case, lease and certificate of lease are issued. However, for all rural areas, title deeds are issued. In case of freehold, the owner of the land has absolute rights, no limitations on time or use, unless the use is for business, such as the construction of an industry or a shop (discussions with Mr M. Muikiria, Senior Taita Taveta District Surveyor and Mr F.K. Orioki, Taita Taveta District Land Officer, March 2000).

In most African countries and Kenya, in particular, the contemporary post-colonial government inherited and maintained the colonial legacy of inadvertently undermining indigenous customary tenure systems. During the colonial era (1888-1963), several changes in land use and tenure were witnessed. The most momentous was the implementation of the Kenya Land Commission's recommendations of 1932 (Carter 1934) and later, Swynnerton's plan of 1954 (Swynnerton, 1954) on land tenure reform.

In an attempt to solve some problems related to land tenure following the incursions and subsequent land alienation and settlement by colonialists in Kenya, the British colonial administration set up an official commission to determine once and for all what land belonged to whom. Under the chairmanship of a judge, Sir Morris Carter, the commission travelled all over the country collecting evidence on land use and tenure from as wide a variety of sources as possible. Its findings, published in 1934 (the Kenya Land Commission Report, Carter 1934), laid the foundation to what may be regarded as a formal pattern of land ownership, which persists until the present day.

On the basis of the findings of the Kenya Land Commission, the colonial government delineated boundaries of land ownership and tenure across the colony. On the basis of historical precedent, use and residence, it determined which areas clearly belonged to particular tribes or groups. Most of these areas were set aside as 'Native Reserves' for the exclusive and perpetual use of the group or tribe, while some portions – particularly the well-watered areas – were annexed for the European settlers in addition to earlier land ('Crown Land') set through Crown Lands Ordinance of 1902 for colonial settlers. The commission did not acknowledge ownership by a tribe if the land was thinly populated or unoccupied in the sense of not observably being in use for settlements or farming, as is often the case with most pastoralists' land. Such land was designated as 'state property'. However, the Commission made it clear in many cases, that the designation of an area as 'Crown Land' did not automatically dispossess those who were living on it of their right to continue living there and that this should have primacy over other rights.

About twenty years later, the Swynnerton Plan of 1954 introduced land tenure reform in Kenya with the political objective of counter-insurgency following a state of emergency between 1952 and 1956.[3] The idea was to create an emergent class of farmers amongst the Kikuyu, to help foster political stability. Therefore, a class-based land reform model centred on the progressive or commercial farmer was opted for. Indeed, the implementation of the low-density scheme in the mid to late 1950s, followed by the high-density or 'million-acre' scheme in the 1960s, was a political ploy to pacify rural unrest by creating a landed gentry and subsequently reconcile the competing and conflicting needs of the constituents involved in Kenya's transition to independence. It contained a strategy for the development of a class of progressive farmers. The dual reasons were the institution of freehold land tenure and the selective loosening of restrictions on African cultivation of high-value crops such as coffee and tea.

The plan aimed to provide individualised tenure security and to stimulate farm investment, agricultural growth and the emergence of a land market. The programme was maintained after independence and expanded nationwide. Kenyan nationals were granted individual titles to

[3] The 1952-1956 state of emergency in Kenya was to put down a revolt by natives who did not cherish the idea of staying under British colonial rule and greatly resented the appropriation of land by the colonial settlers.

portions of former colonial settler estates and fragmented customary holdings were subject to compulsory consolidation. Further consolidation was expected because of market transactions in land, while administrative benefits were anticipated from the creation of an organised

Box 6.1
The unanticipated effects of land tenure reform in Kenya

The Swynnerton Plan of 1954 (Swynnerton 1954) and the subsequent land reform programme in Kenya have had a wide variety of unanticipated effects. These include subdivision of holdings and destruction of customary patterns of land allocation and inheritance (which, despite registration, have persisted) with the result that:

- the expected free market in land has not materialised;
- the availability of agricultural credit has not significantly increased; and
- land registers are becoming outdated, as heirs or lessees fail to renew registration.

In addition, land registration has been accompanied by intra and intergeneration inequity through:

- increased concentration of land ownership, especially among the recipients of former settler land and those influential enough to manipulate the registration process in the interests of themselves, their lineage or clan and for political patronage - a situation currently described as 'land grabbing'.
- the extinction of prior customary rights within households and of reciprocal rights to resource use between different social groups, resulting in diminished security of tenure for non-title holders, notably wives, children and landless farmers who can no longer rely on established secondary rights or kinship ties to guarantee land access;
- increased insecurity amongst women, especially widows, women without off-farm incomes, and women without male heirs;
- increased inequalities in land ownership and agricultural incomes, leading to increased landlessness through land transactions, higher tenancy rates and rural-urban migration;
- landlessness and unemployment, caused by reduced opportunities for share-cropping and tenancy opportunities provided by widespread fragmented land holdings;
- diminished food security and increased vulnerability to drought amongst groups whose access to land has been diminished by the titling process;
- increased level of disputes as a result of the superimposition of systems of individual rights onto pre-existing systems of multiple rights under legal plurality in traditional entitlement structures;
- increased vulnerability to political incitement and land clashes;
- increased encroachment, squatters and demand for excisions of protected conservation areas;
- costs of obtaining land titles that are greater than the benefits for many farmers.

For the direct beneficiaries, land titling provided very secure tenurial rights and the early phases of the programme were indeed accompanied by increases in beneficiary farm income. However, it is impossible to disaggregate the impacts of tenure reform from those of other programmes aimed at promoting growth in the post-independence period. The academic debate about the impacts of land registration and titling continues, but the policy implications of Kenya's long experience of tenure individualisation are relatively clear:

- The results of the enormously costly registration process, in terms of agricultural productivity and incomes are ambiguous, to say the least.
- Tenure reform alone is not likely to succeed in enhancing smallholder production or livestock production on pasture land.
- Land titling has a negative impact on the poor.

In the context of these challenges, the civil service identified the need to further reform the tenure system in order to accommodate some of the persistent realities of customary land transactions. Thus, a Presidential Commission of Inquiry into the Land Law System of Kenya was commissioned on 17 November 1999 to undertake a broad review of land issues in Kenya and to recommend the main principles of a land policy framework which would foster an economically efficient, socially equitable and environmentally sustainable land tenure and land-use system.

Sources: Julian Quan (2000); Soludo (2000).

record of property rights to land. The titling and registration process remained incomplete, however, and, in principle, continues. The programme has had a wide variety of unanticipated effects (Box 6.1), now widely recognised, thanks to extensive documentation and analysis of the results of micro-level studies in various parts of the country (Quan 2000; Soludo 2000).

Notwithstanding the Swynnerton plan, which was politically motivated, both the colonial and postcolonial governments believed that indigenous/traditional tenure systems were incompatible with western or current systems of government and the associated economic institutions (Mandivamba 1999). This led to the endeavour of replacing them with state-imposed individual property rights to land-based resources through land adjudication. Individualisation of land has been assumed to be more compatible with the intensification and commercialisation of agriculture and to give greater incentive for investment and improved resource management. However, the general experience in Africa and in Kenya, in particular, has been that land titling and registration programmes have generally not yielded positive benefits nor increased tenure security, due to the weakness of government institutions.[4] In some cases, where private property rights were not viewed as legitimate or not enforced adequately, *de jure* private property and government land has become *de facto* open access land.Box 6.1 summarises the unanticipated outcomes of the Swynnerton Plan.

In precolonial times, all land was under customary law and it is not likely that there was any land in Kenya free from tribal occupation by residence or use, whether seasonally or throughout the year. Although there was no uniformity in traditional/tribal land use and tenure, customary land embraced most of what is regarded to as Trust Lands. There were sections for communal use and even for private individual use at family level. During the colonial period, the customary land was reduced to include only the so-called 'native land'. The rest was either the settler's reserves alienated from core areas of some tribal customary land or the Crown Land, which was mainly pasture land. Later, in the post-colonial period, the division of land tenure categories were regrouped into three main types: Trust Lands, government or public land and private or individual land (Tables 6.1 and 6.2).

Customary and Trust Land

Trust Land includes former native reserves and customary/communal land. The customary land tenure is based on indigenous property rights under the customary laws, which tended to recognise a bundle of aggregated rights to the many natural resources associated with land. These rights are both spatial (or resource)-specific and temporal. This means that rights can apply to a particular area or to specific resources, such as plants providing materials for construction and tillage, forage, tree species and ground water, and that they can vary according to seasons and a wide range of conditions. In the past, different communities had access to specific areas and smaller social units (social and political organisations) within the community had access to specific land and resources. These social units that shared an area

[4] A good example in Taita, in addition to small-scale farms, are the ranches which were established for livestock ranching. Huge loans from the Agricultural Finance Corporation (AFC) under the Kenya Livestock Development Project (KLDP) Phase I and II, funded by international donors, were disbursed for livestock production. However, the project did not anticipate droughts, livestock diseases, cattle rustling, depredation and competition with wildlife and poor management. The result is that all the operations of the ranches collapsed and many are still in debt.

may be kinship groups (as among the Taita), a clan (which applies to the Samburu) or a sub-tribe (Maasai).

Table 6.1
Land use and tenure in Kenya

Tenure type	Size (x 1,000 ha)	Tenure type	Size (x 1,000 ha)
Government land	116,088	*Trust Land* (not for registration)	59,625
Forest reserve	9,116	Forest	7,084
Other government reserves	1,970	Government reserves	492
Township	2,831	Townships	1,812
Alienated land	38,546	Alienated land	33,397
Un-alienated land	28,598	Game reserves	13,691
National park	24,067	National park	3,149
Open water	10,960		
Freehold Land	8,731	*Trust Land* (available for small-holder registration)	398,816
Small-holder schemes	6,615	Already registered	27,729
Others	2,116	Not yet registered	370,087
		Total Trust Land	457,449
Total area of water			11,930
Total area of land and water			582,646

Source: RoK (2002a).

Table 6.2
Basic category of land in Kenya based on ownership and use

Land category	Ownership	Type	Use	Legislation
Government land	Government on behalf of the public	- Utilised	Government use	Government Land Act, Cap. 280
		- Unutilised - Unlamented	General public use the Commissioner of Lands	Administered by
		- Reserved		
Trust Land (communal)	Trusteeship under county councils (customary laws and rights)	- Utilised - Unutilised	Local residents, various uses, *e.g.* agriculture, pastoral, etc.	Trust Land Act, Cap. 288, Constitution of Kenya
Private land	Private individuals	Freehold and leasehold tenure	Registered individuals and organisations, various uses	Registered Land Act, Cap. 300

Source: RoK (2002a).

Following the incursions by the European colonialists, this system of land tenure was distorted. The fundamental factor, even under contemporary governance, is the clash between the customary laws governing tenure *vis-à-vis* statutory laws that are based on capitalistic and European colonial principles. The tendency in customary law to confer greater recognition on group rights was subordinated to western law, which emphasised individual rights. Moreover,

the Western development initiatives viewed customary tenure as open access regimes and a hindrance to development and conservation, since it tended to discourage individual initiatives to invest in land and manage it properly. Nonetheless, it is now being recognised that, where state-based tenure has replaced customary tenure systems, the flexibility of rights that can promote sustainable resource management and equity has been lost (Mandivamba 1999).

At independence, the native reserves, which were the main portions of customary land, became Trust Lands administered by the local government. Under Section 115 of the Constitution, all Trust Land is vested in the county councils within their areas of jurisdiction and is to be held

> … for the benefit of the persons ordinarily resident on that land and shall give effect to such rights, interests or other benefits in respect of the land as may, under the African customary law for the time being in force and applicable thereto, be vested in any tribe, group, family or individual: provided that no right, interest or other benefit under African customary law shall have effect for the purposes of this subsection so far as it is repugnant to any written law (Constitution of Kenya, Chapter IX, Section 115(2), RoK 1998).

Box 6.2
Some important cases of customary land claims from indigenous communities in Kenya

The Trust Land Act, Cap. 288, Forest Act, Cap. 385 and Government Lands Act, Cap. 280 do not regard the Ogiek as a forest-dwelling community. The courts also shy away from addressing the indigenous rights issue. In April 2002, the High Court sitting in Nakuru failed to recognise the Dorobos' land rights and award them any benefits from the Lake Bogoria National Reserve. The court simply told them off, saying, 'the law does not allow individuals to benefit from such a resource simply because they happen to be born close to the resource'. A similar view had been advanced in 2000 when a case filed by the Ogiek of Tinet was thrown out on the same basis by Mr Justice Samuel Oguk and Mr Justice Richard Kuloba who ruled that 'there is no reason why the Ogiek should be the only favoured community to own and exploit a natural resource; a privilege not enjoyed or extended to other communities'.

In April 2002, Narok District Commissioner Joseph Kiminyi ordered the Ogiek and Maasai communities residing in Enoosopukia in Narok District to leave. The administrator was later supported by the Rift Valley Provincial Commissioner, Peter Raburu, who said that Enoosupukia was a water catchment area that should not be inhabited. The elders of the two communities said that Enoosupukia is their ancestral land and vowed not to leave. The Maasai clans of Purko, Ildamat and Keekonyokie inhabit the area. The same argument was used in the land clashes of 1992 to evict immigrants from Enoosupukia, sparing the Ogiek and Maasai communities (*Daily Nation on the Web, Nationaudio.com, Thursday 30 May 2002*).The Enoosupukia case during the infamous 1993 tribal land clashes in Kenya is discussed in details in Dietz (1996).

The issue of indigenous rights is a worldwide one of resource exploitation and capitalistic tendencies that discriminate against small, marginalised communities sitting, for example, on wooded land, gold reserves or land where diamonds have been discovered. For instance, the Khoisan of Botswana are being kicked out of the Kalahari Desert to pave the way for the mining of diamonds. To chase them away, the Botswana Government has cut off piped water to their villages. When the United Nations Permanent Forum on Indigenous Issues was inaugurated in May 2002 and held its first-ever session, UN Secretary-General Kofi Annan hailed the move as a 'historic' initial step towards meeting future challenges. He said that soon indigenous issues would assume a higher profile on the international agenda than ever before.

Worldwide, the indigenous groups add up to some 300 million people across five continents, and they all face the same problems: obstacles to land ownership, desire for self-governance, treaty violations by governments and human rights abuses. Poverty, illiteracy, unemployment and soaring health problems plague many of these communities, such as the Ogiek in Kenya.

However, some of these lands have since been privatised through land registration and adjudication. Some of the remaining non-privatised areas of Trust Land have been set aside as wildlife and/or forest conservation reserves under the local government, while others have been gazetted as reserves under state land. Under Section 117 of the Constitution, parliament may empower the county council to set apart an area of Trust Land for use and occupation, 'by a public body or authority for public purpose' or by any person for a purpose which in the opinion of the council is likely to benefit the persons ordinarily resident in that area (the Constitution of Kenya, Chapter IX, Section 117). This provision extinguishes customary laws and has been used to establish national parks and reserves. Under Section 118 of the Constitution, the President may vest a portion of Trust Land in the central government if such land is needed for:

- the government to set up a corporate body for a public purpose;
- an enterprise, the shares of which are held by or on behalf of the government; or
- prospecting for or extracting minerals or mineral oil.

It is clear that in the process of conversion of Trust Land to state and private land tenure, customary laws and thus customary rights are finally diminished.

The Trust Land Act (Cap. 288) recognises that certain occupation rights under customary law are applicable to Trust Land. Where such land has been occupied under customary law, subsequent acquisition is subject to compensation to the occupants. The Act also recognises customary law and rights of tribes, groups, families and individuals to occupy, use, control, inherit, succeed to and dispose of Trust Land that is subject to the Act or any other law presently being in force. However, in the context of customary law, the Trust Land Act merely grants customary rights, the juridical extent of which is questionable. Moreover, statute law supersedes customary law and, in most cases, there is no compensation once such land is taken away. When the land is adjudicated, consolidated and registered to individuals, it ceases to be Trust Land.

Public land

All the land that the Land Commission of 1932 designated as public land was proclaimed as 'State property' or 'Crown Land' through an ordinance dating from 1902. This land falls under government/public land tenure and the government has the prerogative of deciding on the most appropriate use, and by and for whom such use could be undertaken. At the discretion of the government, some of these areas were therefore set aside under exclusive public tenure and designated as wildlife and/or forest conservation areas, while some were left under the government. However, a substantial portion of this government land has since been settled, while others have been subdivided as ranches. The implication is that all seemingly unoccupied land under customary law was alienated and given in leasehold or even granted in freehold to newcomers, even if it was only temporarily abandoned or still in use by locals who mainly occupied native reserves.

Private land

Private individual land tenure is an 'absolute' proprietorship of land by individuals. In essence, private land is all land that is owned, held or occupied under freehold or leasehold title, certificate or claim of land, which is registered as private land under a Registered Land Act. This tenure system has been increasing, mainly because of Kenya's economic goals, *i.e.* to intensify the use of the country's agricultural resources and ensure economic growth. It is

assumed that land individualisation by converting public or communal tenure into private tenure would increase agricultural production. For the arid and semi-arid areas, mainly occupied by pastoralists, the government opted for a tenure mode that would promote commercial livestock production (Nunow 2000).

Subsequently, the 1968 Land (Group Representative) Act (Cap. 287) was enacted. This enabled the formation of groups which registered blocks of land with fixed boundaries, but viable for commercial livestock ranching. This form of ownership is a hybrid between individual, communal and public ownership and intended to ensure access to large tracts of land and conferring corporate rights on the group. The registered members hold a group title deed, giving entitlements to the exclusive use of the ranch resources. Nonetheless, most of these group ranches are faced with the problem of giving power to their representatives and the Registrar of Group Representative, and not to the members. Other problems faced by the group ranches[5] relate to the Kenya Livestock Development Project (KLDP)[6]. Rutten (1992: 286) cites five main problems faced by the KLDP and the group ranches. These include delayed and problematic implementation; investment and loan repayment problems; boundary maintenance, stock quotas imposition and range conservation problems; failure of the group ranch to commercialise livestock; and internal administrative problems. In the context of these problems and the lack of trust, group members have been pressing for individualisation through subdivision, a move that the government has acceded to[7].

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5 The concept of the group ranch, according to Rutten (1992: 269) is placed in time between the East Africa Royal Commission of 1955, which favoured individual tenure in the whole of Kenya, and the Lawrence Mission in 1965-66, which preferred the establishment and registration of group ranches in the semi-arid regions. He notes that, for Kajiado district, a range management advisor of the United States Agency for International Development for the Kenya Government, Ministry of Agriculture and Animal Husbandry, Leland Fallon, also played a major role in the group ranch formation. With the birth of the concept of group ranch, the Range Management Division (RMD) laid the grounds for the Kenya Livestock Development Project that ran from 1963 to 1968.

6 The KLDP was initiated in 1968 to enhance development of livestock production in Kenya through implementation of the so-called 'group-ranch' policy. The main objectives were to increase meat production, enhance employment in the livestock sector and ensure conservation. Funding came from the World Bank (IBRD), USAID (United States Agency for International Development), IDA (International Development Association), SIDA (Sweden), CIDA (Canada) and ODA (United Kingdom Overseas Development Agency). The major aim was to implement strict grazing management in combination with infrastructural development such as boreholes, dips, firebreaks and dams. The product (fattened steers) was to be sold at a profit in major towns, in particular, Nairobi. However, the drought of 1970-1971 and the poor design and management of the ranches, notably lack of involvement of local people and lack of acceptance and support stifled the first phase. The second phase started in 1974 with little enthusiasm. Not much was achieved by the approximately 200 beef ranches which obtained the loans, out of the 450-500 ranches countrywide (Wales *et al.* 1979).

7 The subdivision of group ranches has been a controversial issue among stakeholders, ranging from members, relevant government department and agencies, non-governmental organisations and conservationists. In Kajiado and parts of Narok, some leaders and powerful people were accused of selling, and others of grabbing, some portions of the ranches. Rutten (1992: 300), who meticulously describes the process that finally led to group ranch subdivision, cites numerous cases of abuse.

Box 6.3
"Land and inequality in Kenya: A time bomb waiting for radical reform"

Estimates indicate that Kenya in 1993 had about 240 urban centres with a total population of approximately 5.6 million, up from 4.6 million in 1990. Currently, Nairobi (the capital) has close to two million people, 55% of whom occupy 4% of the total residential land, making the demand for land very high. According to experts, the crisis is caused by the combined effects of unsustainable demographic patterns, especially rapid urbanisation, objective limits to available land resources, limited application of scientific knowledge in facilitating sustainable land use, increasing social injustice through unlimited appetite for land, and a blend of incompetence and corruption on the part of government officials in land allocation.

Land ownership, according to public officials and politicians, is a true sign of power and wealth, and they will do all they can to influence its allocation. Discretionary allocation of publicly owned land to individuals has become a means of dispensing political patronage. The law empowers the President, for instance, to allocate public lands to individuals, groups or organisations. The allocation system is so flawed that even the Minister of Lands and Settlement admitted that, 'the Boards, together with district land tribunals, are not well run and should be streamlined'. So far, no one in government has explained to the landless in Coast Province why they are squatters on their own native lands, whereas a few politicians and their allies have been allocated huge chunks of land and have even been issued with title deeds.

The consequence of the extreme inequality engendered by the discretionary and distorted land market in Kenya (government allocation of public lands and unlimited private ownership) leads to frequent and violent land disputes – which often cause deaths, court battles and wanton destruction. In a recent clash between traders and Muslim youths over a plot of land in Nairobi's South B estate (comparable only to the infamous 1992 and 1997 land clashes), Kenyans showed they could do anything when it comes to land matters. The fracas left churches, business enterprises and a mosque razed to the ground.

Why do land issues generate so much heat and tension in Kenya? According to a lecturer at the University of Nairobi (Washington Olima) 'land is the lifeline of every living organism. Man needs it to exist socially, economically and politically. They can till it, give it out as a present, build on it or use it as collateral. That is why when it comes to land, nobody reasons'. Culturally and socially, land is a status symbol, and to some it offers a diverse source of power, wealth and prestige. 'Unfortunately, some of these attachments are reflected nowhere in Kenya's land laws. Thus, land in the country is a time bomb ticking away'. According to the expert and University of Nairobi lecturer, Tom Konyimbih, 'it is now necessary to redesign our land laws to conform to Kenya's socio-economic circumstances which the British law we inherited did not take into account'.

Konyimbih cautions that the newly established Commission to undertake a broad review of land issues and to recommend the main principles of a land policy framework in Kenya is not a panacea for ending disputes, since no Act of Parliament is fully implementable.

Source: Daily Nation, Kenya, Friday 8 December 2000, p. 8.

The land individualisation/privatisation/capitalisation process in Kenya has led to a decrease in customary or Trust Lands and public lands. It has failed with regard to the aim on which it was based, that is, to increase agricultural production and, hence, economic growth, and to stimulate good land stewardship. The resulting problems include landlessness or near landlessness (Leonard 1989: 13)[8] and poverty. Some of the factors that have led to landless-

[8] Near landlessness is defined by Leonard (1989) as access to plots of land which are too small to provide a minimal livelihood under existing land-use patterns and technical capabilities.

ness and poverty include land speculation and the resulting land deconsolidation[9] and 'absentee landlordism'. Other factors include population growth and poor governance, riddled with unfavourable economic policies and corruption. In particular, pastoralists and hunter-gatherers, such as the Ogiek community, illiterate and female agriculturists and younger generations are the main victims of land capitalisation, a true recipe for intra and inter-generation inequity and unsustainable development. These deprived groups cannot compete with the vested interests of a few powerful groups of politicians, rich farmers, ranchers and multinationals. Competition sometimes evolves into open conflict[10] between groups, including the deprived groups, and this is expected to become more intense in future.

Taita Taveta land use and tenure

The Taita Taveta district is facing land use and tenure problems. These problems are not unique, given the history of land acquisition and the current land-use system, which we discuss below. In Taita, the various colonial land ordinances between 1902 and 1930 and the Crown Lands Ordinance categorised land into Crown Land and Native Reserves. A large chunk of Crown Land was gazetted as the Tsavo East and West national parks in 1948, occupying over 62 per cent of the district. At the same time, another huge piece of Crown Land adjacent to the parks became a game reserve, while yet another was divided into hunting blocks from which African hunters were excluded.Large areas, about 73,560 hectares, were leased or sold to sisal estates. In all this, it is clear that the authorities were unaware, or even chose to ignore, the economic uses to which the inhabitants put these areas.Following the annexation, the people's rights over land disappeared. Their property became Crown Land and they themselves became "tenants of the Crown", confined to native reserves or to "Trust Lands", as

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[9] Land consolidation endeavours to amalgamate all land owned by one individual into one parcel. Speculation has led to deconsolidation, where individuals are buying scattered pieces of land which are sometimes even not viable for agricultural use.

[10] A case in point in Taita Taveta District is that between Hon. Basil Criticos, former Member of Parliament for the Taveta constituency, and the local communities. Hon. Criticos owns about 72,000 acres of sisal estate, which straddles the Kenya-Tanzania border ('He owns over half of the sub-district', Sunday Nation, 20 May 2001). He inherited this land from his father, George Criticos, who settled in Taveta in 1957. By then, the area of land was 92,000 acres, but later he sold part of it to the late President Kenyatta's family. Criticos claimed that there were squatters on his land who have destroyed part of his sisal farm and he wants to evict them. The local communities, on the other hand, claimed that the land belongs to them. During a meeting held at the Wundanyi County Council Hall, the Commission of Inquiry into the Land Law System in Kenya, led by Mr Charles Njonjo, received views from the local people on 4 July 2000 (see also Sunday Nation, 20 May 2001, p. 8, - which made Criticos quit his Taveta seat). A former Member of Parliament, Wundanyi, told the charged meeting, which was attended by local politicians, civil leaders and common people, that 'while Hon. Criticos owned thousands of acres, some indigenous people were living as squatters on their ancestral land.' Nonetheless, the affected people vowed to try to bar him from selling or renewing the leasehold of the sisal estate. The situation was serious to the extent that, utterances by Hon. Criticos that his land was seized in a "Zimbabwe-style of farm invasion" led to his demotion from an assistant minister in the KANU (Kenya African National Union) government. His claims were refuted by the then head of the Kenyan civil service and secretary to the cabinet (Dr Richard Leakey), who accused him of dishonesty. He pointed out that Criticos' land had been the subject of litigation in the Kenyan Courts well before the Zimbabwe land upheavals. Later in May 2001, Criticos resigned his post as Member of Parliament for Taita Taveta constituency and emigrated to United States.

they became at independence.The inhabitants were denied their original land for livestock grazing and hunting. The Kenya Land Commission (Carter Commission of 1933) visited Taita-Taveta District, but did not recognise the socio-economic problems brought about by the land annexations.Only a few changes were recommended, such as handing back to the people of Wundanyi some of the land given to European settlers and church missions.

Though the indigenous people's complaints were recorded as early as 1946, up to now, nothing much has changed. Most of the district's ranching land is leased to rich and influential persons for between 45 and 99 years. Although some of it is composed of group and cooperative ranches, membership in most group ranches is by people from the hills, often from one location.

Land use and tenure

Most studies on land use and tenure in Taita Taveta District focus on the lowlands, particularly the areas around the park (Ngure 1992; RoK MoTW 1982; Corfield 1974). In brief, the nomadic pastoralists – the Maasai in the west and the Galla in the east – inhabited the low-lying areas. These groups of people have changed their spatial and temporal patterns and are becoming more sedentary because of land scarcity and changes in land use and tenure systems. Before the advent of the colonialists, pastoralists, raiders and hunters used most of the lowlands in the area seasonally and sparingly. The Taita and Wakamba people lived in the hills and hunted in the lowlands. They lived in the hills either because of the good climate for farming or because of fear of Maasai raiding parties. Ten years after the park was established in 1948, a small tribe known as Waliangulu was found living in Tsavo East National Park in low densities along the Voi River where they subsisted by hunting elephants and other animals (Njogu 1997). The cultural links with the elephants of these and other hunters, such as the Waata, ended because of the banning of any sort of hunting and its enforcement by anti-poaching patrols. However, illegal hunting of wildlife continues to date, as well as illegal charcoal burning. Currently, the lowlands are used for settlement, small-scale farming, pastoral grazing, large-scale sisal farming, commercial ranching and wildlife sanctuaries. The highlands are mainly used for settlement, small-scale farming and forest conservation. Because of the high population density in the highlands, people are moving to the lowland. However, soil studies (van Wijngaarden and van Engelen 1985) and analyses of rainfall patterns in the area (Cobb 1976; Phillipson 1975: 171-201) indicate that the most suitable land use in the lowlands is wildlife conservation, tourism and, probably, some ranching.

In terms of land-use cover, Tsavo National Park (TNP) occupies 10,539 km^2, which is about 62% of the total area of the district (Table 6.3a). Therefore, the land left for other uses is 6,435 km^2 (38%). Out of this, the rangeland occupies 4,057 km^2, representing 24% of the district's total area. This land was initially under state ownership and comprises mainly the ranches. Agricultural land, which was initially under Trust Land, is about 1,930 km^2 (11% of the total area), much of which is currently under private ownership. The bare land and water surfaces cover between 400-500 km^2; about 3% of the district's total area. Sisal estates, the only large-scale farming activity in Taita Taveta District apart from ranching, covers 31.4% of the privately owned land, while the remaining 68.6% is used for small-scale farming and settlement (Table

6.3b) with an average area of 1.78 acres per registered holding (RoK 1978).[11] In total, sisal estates cover 3.6% of the district's total area.

Table 6.3a
Taita Taveta District land use and tenure

Use	Size (ha)	Percentage	Tenure
Tsavo National Park	1,053,900.00	62	State
Rangelands	405,700.00	24	Mostly state
Agricultural land	192,300.00	11	Local government
Water surface and rocks	45,600.00	3	Local government
Taita Taveta District (Total)	1,697,500.00	100	

Sources: Taita Taveta District Development Report (1993); Farm Management Handbook of Kenya (1985)[12] Vol. II; RoK (2002a).

Table 6.3b
Specific land-use types in Taita Taveta District

	Land use	Size (ha)		Percentage	Tenure
1	Rangeland	1,459,600.00		86.0	
	Tsavo National Park	1,053,900.00		62.0	State
	Ranches	372,000.00		22.0	See ranches
	Sanctuary	10,000.00		0.6	Private
	Communal grazing land	23,700.00		1.4	State/Trust Land
2	Agriculture and forest	192,300.00		11,0	
	Small-scale holdings	119,600.00		7.0	Private
	Large-scale sisal estates	60,660.00		3.6	
	Taita/Mwatate		12,000.00		Private
	Voi/Msinga		8,000.00		Private
	Taveta		10,479.00		Private
	Jipe		11,338.00		Private
	Ziwani		14,843.00		Private
	Kidai/Paranga		4,000.00		Private
	Forest reserves	7,518.40		0.4	
	Gazetted		1,227.30		State
	Ungazetted		6,291.10		Local Government
2	Bare and water surfaces	45,600.00		2.6	
	Total	1,697,500.00		100.0	

Sources: Author's compilation from the Taita Taveta District Development Report (1993), the Farm Management Handbook of Kenya, Vol. II (1985) and interviews with DLAO/TT (District Land Adjudication Officer Taita Taveta) Mr F.K. Orioki (March 2000) and Senior Taita Taveta District Surveyor, Mr M. Muikiria, (March 2000).

[11] Through population increase, the average size of the farms is small and 63% of total farms in the hills occupy less than 1.5 acres (RoK 1974). Discussions with DLAO/TT indicate that this figure of 1.5 acres per holding is only for the registered land parcels. If the unregistered subdivisions for inheritance under customary law were taken into account, then the parcels would be a fraction of an acre.

[12] Some figures are not the same in different reports and development plans. For instance, the size of the district has been shown to be 16,975 km^2 (RoK 1982: 31, Table 2.5.1), 16,981 km^2 (Farm Management Handbook of Kenya, Vol. II, 1985, Table 1.18 on land-use pattern) and 16,959 km^2 (Taita Taveta District Development Plan, 1994b). Table 1.17 on agro-ecological zones in the Farm Management Handbook of Kenya indicates an area of 6,420s km^2 outside the park and 10,539 km^2 in the park, totalling 16,959 km^2 for the whole district. For this thesis, the area considered is 16,975 km^2.

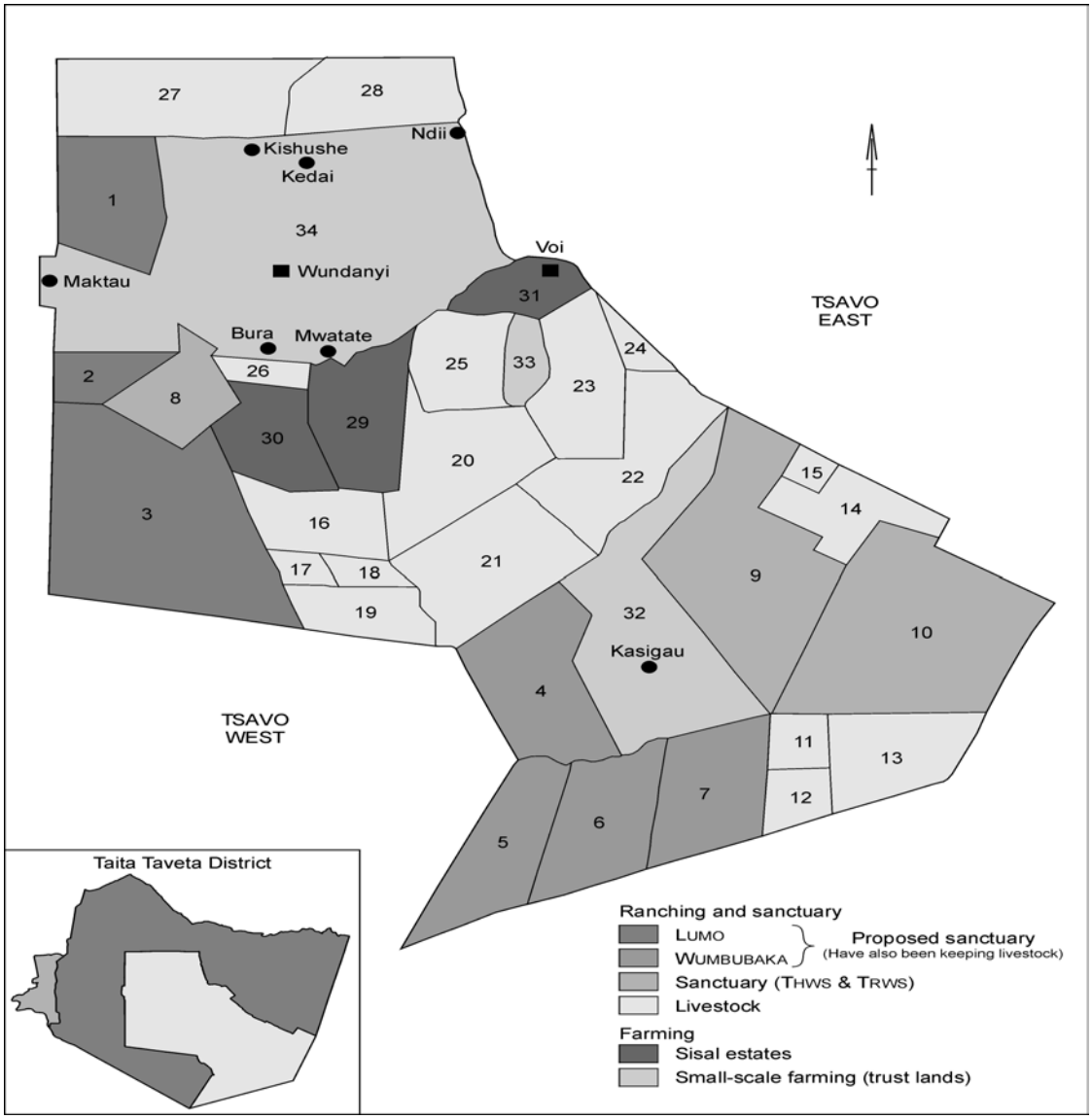
Tsavo National Park

Tsavo National Park (TNP) is the largest park in Africa, with an area of about 20,766 km^2 – about half the size of the Netherlands. Only a few wildlife sanctuaries, such as the Selous game reserve in Tanzania are larger. TNP covers 3.6% of the total landmass of Kenya, 56% of total land under parks and game reserves and about 40% of the total protected area in Kenya. The park occupies about 62% of Taita Taveta district, 20% of Kitui district, 9% of Tana River district and 3% of Makueni district's total area. The origins of the boundaries of the present TNP can be traced back to the 1934 Kenya Land Commission Report. As indicated earlier, any area that appeared unoccupied or sparsely populated by local people was designated as State or Crown Land. The commission made it clear that such land did not dispossess those who were living on it of their right to continue living there. However, the government preserved the right to decide on the most appropriate use and on who could undertake such use. In particular, the Commission recognised the clear and unequivocal right of the Orma/Galla and the Kamba to some portions of TNP. The Waata, who were hunters and widely acknowledged to be the original inhabitants of much of the Taita area, presented the Commission with peculiar problems over land tenure. First, their population was low compared to the large tract of land and, secondly, their way of life as hunters was contrary to game laws. Because of this, the Commission could not reconcile their way of life as hunters with permanent tenure. Subsequently, they were not allocated any rights to land and were expected to integrate peacefully with their neighbours. At the time of the Kenya Land Commission, the concept of 'national parks' was widely debated and the country's Game Warden testified at length before the commission. However, no reference was made to the Tsavo area as a potential park until 1948. More than a decade after the Land Commission's report, the Royal National Park Ordinance became law Cap. 377 on 26 June 1945. Three years later, under legal notice Cap. 215 of 6 April 1948, TNP became the second to be gazetted after the Nairobi National Park, which was gazetted in 1946. It was set aside as a national park by virtue of being unsuitable for agriculture and human settlement due to aridity, the presence of trypanosomiasis and wildlife. It was thought that the Tsavo was relatively free and useless for purposes other than wildlife conservation (Njogu 1997). Indeed, earlier explorers and later contemporaries described the area as a flat, featureless expanse of dry *commiphora* bushes (Harris and Harris 1953). The only factor of conservation planning in the delineation of the boundaries was the southern part of Tsavo West, which was to join up with the Mkomasi National Park in Tanzania, a park that was not established until three years after TNP (RoK 1982).[13]

Following the gazetting as a park, nobody was expected or allowed to use the park area, not even the Orma and Galla pastoralists. Before the gazetting, in 1933, the Game Warden had conceded to the 1932 Kenya Land Commission that national parks could contain people. However, this attitude had changed by the time the first national park was gazetted. Thus, despite the commission's assertion that the designation of land as Crown or government land would not dispossess those who were living on it of their right to continue living there, the government claimed the right to decide on the most appropriate use. It was made a national park, hence excluding any other form of land use.

[13] Mkomazi Game Reserve, covering about 3,269 km^2, was established in 1951, three years after the establishment of Tsavo National Park in 1948.

Map 6.1
Taita land use



1 Oza
2 Mramba
3 Lualenyi
4 Kasigau
5 Mbale
6 Bura
7 Wushumbu
8 Taita Hills Wildlife Sanctuary
9 Rukinga
10 Taita ranch
11 Amaka
12 Dabida
13 Kambaga
14 Bachuma
15 Wagala
16 Choke
17 Mkuki
18 Mwasui
19 Wananchi
20 Mgeno
21 Maungu
22 Sagalla
23 Ndara 'B'
24 Ndara
25 Teri
26 Isangaiwishi
27 Kishushe
28 Mbulia
29 Mwatate sisal estate
30 Taita sisal estate
31 Voi sisal estate
32 Kasigau - small scale farming
33 Sagalla hill
34 Dabida - small scale farming

Table 6.4
District contribution to Tsavo National Park

District	Total area (ha; = 100%)	Area in park (ha)	%
Makueni	14,183	461	3
Kitui	31,099	6,309	20
Tana River	38,694	3,457	9
Taita	16,959	10,539	62
Total		20,766	

The values of the Tsavo as a home of elephant and many other species of wild animals since gazetting cannot be underestimated. The elephant population in TNP was about 17,500 head at the time of gazetting and they were the dominant large herbivores in terms of total large mammal biomass (Njogu 1997). These elephants were subject to heavy poaching pressure, especially in the post-World War II years up to 1957, when very successful para-military anti-poaching operations virtually eliminated this as an ecological factor in the area. The removal of this predation was followed by a rapid increase in the number of elephants. Coupled with the contraction of their range due to competition with other forms of land use outside the national park, overpopulation ensued and resulted in severe destruction of habitat. Several studies indicate that elephants are agents of habitat alteration probably second only to human beings (Njogu 1997; Lock 1993).

Wildlife sanctuaries
Wildlife sanctuaries as a form of land use are much encouraged in areas bordering on or in the vicinity of national parks and reserves or on migratory routes, particularly in areas where land parcels are large and suitable for wildlife and tourism, such as ranches. It is a way of encouraging non-consumption use of wildlife by the local communities. However, in most cases, foreigners own such sanctuaries, with limited benefits to the local communities. In Taita, there are two private sanctuaries: the Taita Hills Wildlife Sanctuary (THWS) and the Taita-Rukinga Wildlife Sanctuary (TRWS). There are also proposals by several ranches to unite and form sanctuaries.

Taita Hills Wildlife Sanctuary (THWS)
THWS was started in 1970 on Bura block along the Mwatate-Taveta road, covering an area of about 11,000 ha. Initially, Bura block was leased to a private company, African Pandarosa, for the purpose of game viewing by tourists. However, instead of game viewing it was used as a hunting ground. The local community objected to the hunting and the government asked the company to clear. When it went into receivership, the Hilton bought the land, together with the lodge, which was built in around 1914 by Germans. The Hilton renovated it and developed the sanctuary by making it attractive to wildlife and tourists alike. However, it took about eight years for the sanctuary to start making a profit. Despite its relatively small size, the sanctuary received more tourists in the early 1990s than many other well-known wildlife destinations, such as Maasai Mara: of every ten tourists in Kenya, one visited the sanctuary. Over 100,000 tourists visited the sanctuary in 1992 and 1993, and spent at least one night at

the lodges.[14] The sanctuary provides luxurious accommodation at two lodges – Taita and Salt Lick lodges and Safari Hilton Camp – all of which can accommodate more than 350 visitors per night.

The sanctuary is well managed, with the application of ecological management tools such as controlled firing and selective removal of woody species. Through these and other conservation efforts, the sanctuary has attracted a higher diversity of large mammals, many of which remain within the unfenced sanctuary throughout the year. Current records indicate that there are more than 50 species of large mammals and 300 bird species within the sanctuary. This has also been attributed to the continual presence of water in the sanctuary throughout the year. However, serious problems have emerged over the years, following the increase of wildlife within the sanctuary and increased numbers of tourists and human population in the neighbourhood. As a result, very careful and rigorous management skills are required. In 1993, a fulltime wildlife ecologist, Dr Tim Allen-Rowlandson was recruited to advise the Hilton on future policies and management in order to guarantee the long-term viability of the sanctuary.

Encroachment is the major problem of the sanctuary, especially at the eastern border neighbouring the Alia community, also referred to as the Wumari-Sechu community. This community has claimed a section of the sanctuary as its own to the extent of laying its own boundary (Plate 6), which cuts across the sanctuary, excising over 100 ha of land. While the matter was being handled at the law court, the community burned the forest and hunted wildlife from the area. For instance, about 150 snares were disengaged from the contested area between November 1999 and March 2000. These snares were set for different animals, of which 10 were for giraffes, 50 for buffaloes and 90 for gazelles and other small antelopes, such as dikdiks. Nobody was caught during that period, but a number of people were sighted running away after sensing the presence of the sanctuary rangers on patrols. The southern boundary bordering Lualenyi ranch has no problem, while on the western border some subsistence poaching is practised. In the period between November 1999 and March 2000, about 20 snares were collected mostly for small antelopes. This border neighbours Maktau location, Godoma sub-location, Benji village and a section of Mramba ranch. The northern border, neighbouring part of Benji village through to Mwashuma and up to Alia area is fenced[15] (Plate 6). However, people enter through the fence to collect firewood and they practise hunting on a limited scale.[14]

The problem of high numbers of tourists and wildlife is also serious, as it leads to environmental degradation. In their daily activities, the sanctuary personnel spend about 60% of their effort on managing tourists. The main problem caused by tourists is mainly off-road drives to view and photograph or film wild animals in close proximity. This greatly affects the survival of the animals and may be manifested in various behavioural anomalies. Dr Tim Allen-Rowlandson asserts that off-road driving control is the largest conservation achieve-

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[14] Interviews with Dr Tim Allen-Rowlandson (3 March 2000), Philip (June 1999) and observation during a field drive in the sanctuary guided by Wilson Mkala (Ranger). Dr. Rowlandson also indicted that tourists on their way to Mombasa from Nairobi or to Nairobi from Mombasa would stop over for a night at the sanctuary.

[15] This is the KWS electric fence, which runs along the northern border of the sanctuary to Maktau for about 30 km.

ment of the sanctuary. Increased numbers of wildlife is the only problem that the sanctuary has not attempted to ameliorate, mainly because culling is not allowed in sanctuaries and there is no way the wild animals can be kept away from the sanctuary, unless the pasture and water resources are exhausted. Probably the solution lies in expanding the Taita Hill sanctuary management to other areas, including the park. Indeed, the Hilton supports the idea of neighbouring ranches coming together to form a sanctuary with wide area coverage.

In the context of land-use conflicts, the human population around the sanctuary is the most critical. This increases the chances of direct conflicts between humans and wildlife. In most cases, this is translated into more crop destruction, livestock predation, competition and human injury and/or death etc. To reduce the negative attitude towards wildlife among the neighbouring communities, the sanctuary is participating in local development. It also teams up with the park management in endeavours to appease the neighbouring local communities.

Conflicts also occur between the sanctuary management and the ranches, the local people and the park management. The interests and management approaches of the sanctuary management and KWS sometimes conflict. For instance, the KWS shot five lions outside the fence along the sanctuary in 1999 without consulting the management of the sanctuary where the lions were residing. THWS management argued that they only missed the lions for two days, but the KWS report indicates that the lions were outside the sanctuary for two weeks, in which they killed 42 head of cattle and therefore had to be eliminated by Problem Animal Control (PAC). The management of the sanctuary also argues that KWS raises the expectations of the people regarding benefits from the parks/wildlife, but does not meet the promises, thus causing people to have a bad attitude towards KWS and wildlife and therefore towards the sanctuary. The retrenchment of KWS staff and the stoppage of donor and government financial support in the late 1990s demoralised the staff and weakened the teamwork with the sanctuary, argued Allen-Rowlandson.[16] A number of activities, such as fence maintenance, dwindled, while motivation among its partners went down.[16]

Taita-Rukinga Wildlife Sanctuary (TRWS)

Taita-Rukinga Wildlife Sanctuary (TRWS[17]) was established in the 1990s and has not yet rationalised sanctuary activities that include ecological management and development of tourist facilities. However, the Taita Discovery Centre (TDC) and Galla camp have been established within Taita ranch. Savannah Camp and Lodges own this centre and the camp. The Centre is involved in environmental education for foreigners and Kenyans. It also endeavours to establish a variety of environmentally based enterprises. A company, Wildlife Works Inc., has been established in Rukinga and deals with eco-products.

TRWS constitutes the Taita/Rukinga Wildlife Conservancy, located within the Tsavo ecosystem. It is part of a wildlife seasonal migratory corridor between Tsavo East and Tsavo West National parks. The sanctuary covers both Taita (about 41,000 ha) and Rukinga (about 34,425 ha) ranches with a total area of about 75,425 ha. Taita ranch is a private company ranch run by the Gallana Cattle Company, which is also a shareholder. Rukinga ranch is also a private company ranch and has been purchased by the Gallana Cattle Company. The company operated on both Taita and Rukinga ranches between 1990 and 2000, combining

[16] Discussions with Dr Tim Allen-Rowlandson on Friday 3 March 2000.

[17] American investor Mike Korchinksy, Chief Executive of Wildlife Works International, owns the sanctuary.

both wildlife management and livestock keeping. Rukinga ranch is now managed as a wildlife sanctuary and has not had any livestock on it at all since February 2000. Gallana Cattle Company closed down in the year 2000. However, the company still owns the lease on Taita Ranch and does not rent out grazing rights to Taita people, despite having no cattle. In the early 1990s, Gallana Cattle Company had about 15,000 cattle, but this number gradually declined as the beef industry became increasingly difficult to run as it was not making profit. This was aggravated after the Kenya Meat Commission[18] closed and Somali herds moved into Kenya after the US led trade embargo stopped live meat movement out of Mogadishu, principally to the Middle East. By 1998 Gallana Cattle Company had 5,000 head remaining and by 2001, they had sold everything. Depredation of livestock by wildlife was also experienced. In the year 1998, the company lost 132 cattle, 13 shoats and 20 cattle were seriously injured. Of the deaths, the lions were responsible of 102 cows and 11 shoats, cheetahs 1 shoat, elephants 3 cows, jackals 1 shoat, hyenas 5 cows, while the cause of 22 deaths was not known.[19]

Like THWS, TRWS experiences the problem of encroachment, particularly from the side of Rukinga, which has squatters. Other problems include subsistence poaching and charcoal burning, especially in the neighbourhood ranches between the Kasigau and Rukinga hills (Plate 2).[20] Nonetheless, livestock keeping failed, but the viability of wildlife management and tourism has yet to be demonstrated. Taita Discovery Centre hopes to make the ranch profitable. The sanctuary is seeking alignment and integration with the local community in order to provide an income through future joint ventures. It hopes this would allow a revenue-sharing opportunity through sustainable environmental utilisation and tourism/education-based projects which rely on healthy woodland in the area.

Proposed sanctuaries

The proposed sanctuaries include Lumo and Wumbubaka, which will comprise several ranches initially engaged in livestock production. The Lumo comprises *L*ualenyi, *M*ramba and *O*za ranches, while Wumbubaka comprises *Wu*shumbu, *Mb*ale, *Bu*ra and *Ka*sigau ranches (Map 6.1).

The idea of the Lualenyi ranch being involved in tourism was proposed by the THWS after serious protracted land-use conflicts between the two. Lualenyi, which has a highly organised Board of Directors, once demanded compensation for use of their land by THWS tourists viewing wildlife across the border. The Lualenyi management also demanded Ksh. 10,000 (US$ 130) from a balloon pilot who came down on Lualenyi land. These demands were not met, as THWS management argued that the tourists did not belong to the Hilton. However, the THWS management is trying to discourage tour drivers from driving into Lualenyi land. The tour drivers, on the other hand, argue with the management on the grounds that the Lualenyi land does not belong to the sanctuary. The solution was reached by charging the

[18] The Kenya Meat Commission factory facility first closed in 1984 and then collapsed soon after a brief re-opening in 1989. Plans are underway to reopen it in September 2003.

[19] Data provided by Rob Dodson, the manager of Taita Discovery Centre, compiled in 1999 from the hand-written data records of the Gallana Cattle Company.

[20] Field observation and Daily Nation, Horizon, Thursday 2 March 2000 and Daily Nation on the web, nationaudio.com, 'Spotlight' Wednesday, 21 August 2002.

drivers twice on behalf of Lualenyi. If they failed to pay, their permits were confiscated and barred from entry into the sanctuary through their employers.

Several meetings were held in the early 1990s under the auspices of some environmental NGOs and KWS, involving the representatives of Lualenyi, Mramba and Oza ranches and the THWS and a proposal was made to link the three ranches to form Lumo sanctuary. Although Mramba ranch, which was registered as group ranch in the 1970s, was founded as a community sanctuary, it has never operated and may not do so until ownership is clearly established. However, the formation of Lumo will take advantage of a larger area, including a corridor, which is government land, joining the TNP with THWS at Lion Rock and parallel to the southern border of Mramba community sanctuary and the neighbouring Lualenyi ranch to the south.

Table 6.5
Ranches proposing to form sanctuaries

Ranch and tenure	Size (ha)	Remarks
Lumo (Lualenyi, Mramba and Oza ranches)		
Lualenyi PCR	43,000	- Have livestock, though declining - Leadership wrangles are common - Leaders have been trained by KWS in sanctuary activities and their value
Mramba GR	4,600	- No ranching activities - Members resolved to form sanctuary in the 1970s when the ranch was founded as a community sanctuary
Oza GR	11,737	- No central herd, but individual members keep livestock in the ranch - Is overgrazed and water is limited - Members have resolved to form a sanctuary
Wumbubaka (Wushumbu, Mbale, Bura and Kasigau ranches)		
Wushumbu DACR	16,159	- No ranching activities due to serious water problems - Member contributing funds to restart cattle ranch together with sanctuary
Mbale DACR	16,100	- No ranching activities, but intention to restart together with wildlife sanctuary
Bura DACR	16,104	- No ranching activities, used to operate, but livestock were stolen; intend to restart together with sanctuary - Illegal mining and lack of water are serious problems
Kasigau DACR	20,920	- Under-stocked - AFC debt of about 10 million Kenya shillings and intention to sell a portion to pay the debt. - Illegal mining is a problem.

Key: DACR = Directed Agriculture Company Ranch; PCR = Private Company Ranch; GR = Group Ranch.
Source: Taita Taveta District Development Report (1993).

Subsequent meetings for negotiations that also involved the Provincial Administration, lawyers and the stakeholders of the Lumo ranches have been held. According to Allen-Rowlandson, the stakeholders unfortunately never made any further step, but kept on repeating issues. Anyhow, the THWS wishes to share with the community and intends to undertake the ecological management of the Lumo with the same regulations as used in its sanctuary, in order to ensure uniformity. They further intend to share revenue by giving US$ 2 per bed occupancy in THWS to Lumo. The Lualenyi ranch does not accede to the desired

uniformity and wishes to continue with livestock keeping, particularly on the eastern side of the ranch. It also wishes to maintain a camp in the ranch being leased to an Italian entrepreneur. To the THWS, developing a camp in the ranch would dilute Taita Hills Sanctuary Salt Lick Lodge and therefore THWS does not support it.[21]

Although the owners of these ranches live outside the ranches, it is doubtful whether the proposed sanctuaries will ever materialise, as most of them are faced with ownership problems and leadership wrangles. For instance, the Lumo proposal is long overdue and the idea seems to originate mainly from the THWS with backup from KWS and some wildlife conservation NGOs, such as the African Conservation Centre (ACC).[22] This endeavour is riddled with suspicion and fear at all levels, starting with members of individual ranches, between the ranches themselves and between the ranches and the THWS. Indeed, as we discussed above, the local communities do not own or run the THWS or the TRWS. The proprietors have well-established connections with tour agencies and operators, who assist in marketing. In this regard, Lumo and Wumbubaka may not succeed unless they develop ties with the existing sanctuaries and/or with other key players in tourism.

Taita Hills forest reserves

Taita Hills forest reserves cover about 0.4% of the total district land mass and include gazetted and non-gazetted or proposed forest reserves. These forests are the only part of the Eastern Arc forests found in Kenya. The Eastern Arc forests run from southeastern Kenya to the Usambara region of Tanzania. As such, they are important reservoirs of endemic flora and fauna.They are located on the three main massifs, Sagalla, Dabida and Kasigau in Taita. The tops of these hills, apart from Kasigau, comprise the high potential agricultural areas, which are also heavily settled. Because of the high human pressure on land, the forest remains only as scattered fragments on the hilltops and ridges, which are mostly unsuitable for human settlements (RoK 1970b). These forests fall under different tenure arrangements. Those that are gazetted fall under the jurisdiction of the Forest Department, while the rest fall under the Taita Taveta County Council. The forest reserve as a form of land use is faced with a number of problems, the most critical of which is encroachment. Historically, the hills were covered by montane forest, which was cleared over time to give way to settlements and agriculture. This is still taking place, despite the changes in the tenure system under which the remaining patches are being protected by the government through the Forest Department in the Ministry of Environment and Natural Resources. This is because of unclear tenure arrangements and is made worse by lack of coordination between various government departments and the inability to control the usage of forest resources. For instance, the precise areas of the Taita hill forests, especially the non-gazetted ones, are not known. However, the list in Table 6.6 was compiled from various reports and documents.

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[21] Discussions with Councillor Richard Mwambili (Chairman of Lumo Community Sanctuary) and Chrispus Mwakamba, (Lumo Manager) in March 2000.

[22] Discussions with Leny Mwangola of the African Conservation Centre (ACC); Dr Tim Allen-Rowlandson, the Manager of THWS and Lualenyi ranch leader, Richard Mwambili, Councillor and Chairman of the Lumo Community Sanctuary (June 1999 and March 2000).

Table 6.6
Taita Hills forest reserves

Gazetted forests					*Non-gazetted forests*		
Name	Tenure	LN*	Year	Size (ha)	Name	Tenure	Size (ha)
01. Kasigau	Trust	102	1941	202.30	01. Bura nursery	Trust	10.00
02. Ngangao	State	235	1991	137.20	02. Chawia	Trust	86.00
03. Choke	State	235	1991	73.50	03. Fighi juu Mkumu	Trust	1,000.00
04. Figi	State	235	1991	0.40	04. Igho Mkundu	Trust	200.00
05. Fururu	State	235	1991	14.12	05. Kalanga	Trust	200.00
06. Goye*	State	235	1991	8.23	06. Igi Ikumu	Trust	100.00
07. Kilulunyi	State	235	1991	0.25	07. Kigala	Trust	200.00
08. Kinyesha Mvua	State	235	1991	49.50	08. Kasigau nursery	Trust	3.0
09. Kulundu	State	235	1991	0.08	09. Kitobo	Trust	160.70
10. Mwandongo	State	235	1991	688.00	10. Latema	Trust	40.50
11. Mwachora	State	235	1991	6.40	11. Mbololo Juu	Trust	688.00
12. Mwakamu	State	235	1991	0.90	12. Mwambirwa	Trust	18.20
13. Mwakamu B	State	235	1991	0.60	13. Irizi	Trust	476.00
14. Mchungunyi	State	235	1991	8.00	14. Jaycee	Trust	10.00
15. Macha	State	235	1991	14.57	15. Mwakinyambu	Trust	404.70
16. Mdegu	State	235	1991	0.36	16. Mraru	Trust	200.00
17. Mbili	State	235	1991	10.23	17. Mwaganini	Trust	35.61
18. Ngomenyi	State	235	1991	0.20	18. Mwarunga	Trust	200.00
19. Ndiwenyi	State	235	1991	5.60	19. Mgambwa	Trust	1,000.00
20. Susu	State	235	1991	1.70	20. Ronge	Trust	318.00
21. Weni Mbogho	State	235	1991	2.00	21. Sagalla	Trust	70.00
22. Weni Mwana	State	235	1991	5.26	22. Sungululu	Trust	50.00
23. Modagache	State	235	1991	3.40	23. Wesu	Trust	50.00
24. Mtege	State	235	1991	0.28	24. Mwarungu	Trust	400.00
25. Iyale	State	235	1991	22.33	25. Goye*	Trust	5.77
26. Mgangenyika	State	235	1991	0.16			
Total				1,255.57			5,926.48
Gross total							7,182.05

Key: LN= Legal Notice

Sources: Forest Department (1998); Annual Report 6/10; Mwangombe J. and Mwanyumba D. (1999); Taita Taveta District Specific Environmental Action Plan (March 1996); CC/FOR 1/VOL. VII/60; Resolution 36/84 of 23 December 1984; List of Forests for DANIDA, CC/FOR 1/VOL. VII/285 made on 3 December 1984; CC/FOR 1/VOL. VI/267; Resolution Number 16/73 of the Full Council Meeting held on 29 June 1973. Most of these sources give different figures. The most repeated figures were adopted for this thesis. The District Forest Office has no precise data on the size of the forest.

Note:

1. Some forests may have a gazetted section, while the rest is not. This is the case with Goye forest, for example.
2. The sizes of gazetted and ungazetted forest areas are shown to be 1,227 ha and 6,291 ha, respectively in Table 6.3b. Although the difference is not significant, the main reason may be attributed to some non-forested areas under county council authority that are classified under forest reserves and include bare land (Mwangombe and Mwanyumba 1999).

Large-scale farms

The large-scale farms include the sisal estates and the ranches, all of which are located in the lowland areas of low to medium agricultural potential.

Sisal estates

Apart from the ranches, sisal estates represent large-scale farming in Taita Taveta District and cover about 3.6% of total district land (Table 6.3b). There are six sisal estates: Taita/Mwatate

sisal estate (12,000 ha), Voi/Msinga sisal estate (8,000), Taveta sisal estate (10,479 ha), Jipe sisal estate (11,338 ha), Ziwani sisal estate (14,843 ha) and Kidai/Paranga sisal estate (4,000 ha). The first two are in Taita, while the rest are in Taveta division.

Initially, the sisal estates were exclusively engaged in sisal production, but because of the increased use of cheaper synthetic fibres, sisal production became limited and less profitable. As a result, some of the sisal estates in Taita started diversifying, while others were partly abandoned sections. For instance, Mwatate sisal estate, which is managed as a family affair, with C. Kymazy and P. Kymazy as the directors, started livestock keeping. By the end of 1997, the estate had 2,500 beef cattle, 220 dairy cattle, 60 dairy goats and 180 Galla goats. The estate established a dairy packaging plant, which has a milk production capacity of about 740,200 litres.

Ranches

About 22% of the rangeland in Taita, which was initially designated as state and/or Trust Land, was converted into ranches through the Kenya Livestock Development Project (KLDP). It was adjudicated and registered under different tenure arrangements for ranching operations. In total, there are 28 ranches in Taita, five of which are group ranches covering an area of 44,982 ha. This area was initially under customary land or Trust Land. The other 23 ranches and some unregistered patches left for communal grazing, occupy the land that was designated as state land. Based on the household survey done for this study, about 74% (n = 169) of the households do not know whether they are members of any ranch. Only 26.0% are members and among these 70.0% are members of Kasigau ranch, 13.6% Kishushe ranch, 4.6% Maktau and each of the rest (Kishamba, Lualenyi, Mwasui, Isangaiwishi and Mbulia ranch) 2.36%.

Ranching activities cover about 400,000 ha,[23] which is about 97.5% of the rangeland, excluding the park or about 24% of district's total land mass.[24] On the basis of ownership arrangements, there are four types of ranches in Taita Taveta District:

1. Company ranches including
   Directed Agricultural Company Ranches (DACR), of which there are eleven and
   Private Company Ranches (PCR), of which there are five.
2. Partnership and individual ranches (P/IR), of which there are six.
3. Group ranches (GR), of which there are five.
4. Operative Ranch (CR), of which there is only one.

Directed agricultural company ranches, group ranches and the cooperative ranch are governed through monthly management committee meetings. The committees are elected annually at the annual general meeting. The owners themselves administer the private and individually owned ranches. However, all the ranches receive guidance from the relevant government departments through the Range Management Department (RoK 1991). Table 6.7 provides a list of the ranches, their respective sizes, and year of registration, tenure and operational status.

[23] This includes ranches (372,000 ha) and communal grazing land (25,700 ha). See Table 6.3b.

[24] See Table 6.3a.

Table 6.7
Ranches in Taita

Name	Area (ha)	Ownership	Date registered	Status
Taita	38,000	PCR	1964	*** S, L
Rukinga	34,425	PCR	1971	*** S
Lualenyi	43,096	PCR	1965	*** S
Sagalla	18,515	PCR	1967	* L
Mkuki	2,025	PCR	1975	***
Sub-total	136,061			
Ndara	2,060	Individual	1968	*** T
Wagala	2,025	Individual	1968	***
Amaka	4,050	Individual	1977	*-
Mwasui	2,025	Individual	1975	- M
Choke	10,000		1968 (split in 1990)	
Choke	4,500	Partnership	1990	***
Kutima	5,500	Individual	1990	***
Sub-total	20,160			
Kishushe	24,000	Cooperative	1968	-PH
Sub-total	24,000			
Mgeno	21,232	DACR	1971	*- L
Maungu	21,232	DACR	1970	*/2
Kasigau	20,120	DACR	1971	** L
Wananchi	8,496	DACR	1974	-
Mbale	16,100	DACR	1975	- M
Bura	16,104	DACR	1975	-
Dabida	4,500	DACR	1974	-
Wushumbu	16,159	DACR	1974	-
Kambaga	14,250	DACR	1974	- S
Bachuma	4,000	DACR	1982	-
Mramba	4,600	DACR	1970	S
Sub-total	146,793			
Oza	11,500	GR	1980	-PH S
Mbulia	34,000	GR	1980	-PH
Kishamba	10,000	GR	1982	-PH
Ndara 'B'	7,000	GR	1982	-PH
Isangaiwishi	2,482	GR	1983	-PH
Sub-total	44,982			
Total	371,996			

Source: Compiled from District Livestock Production Report, Taita Taveta District, 30tMay 1998 (RoK 1998) and the District Development Plan 1994-1998 (RoK 1994b).

Key: Status: PCR = Private Company Ranch; DACR = Directed Agricultural Company Ranch; GR = Group Ranch. *** = 100% Operational; * = 10% Operational; *- =Used to operate; - = Never operated; T = Tourist resort; PH = Personal herding; M = Mining; S = Intention to become, or is, a sanctuary; L = Outstanding loan.

There have been 13 active ranches since 1972, when loans from the donor community were disbursed through the Agriculture Finance Corporation (AFC) under Phases I and II of the Kenya Livestock Development Project (KLDP). However, most of these ranches have either collapsed or are on the verge of collapsing. The rest are either not operational at all or do not operate as units. The cooperative ranch and all group ranches are not operational as units, but individual members herd and keep their livestock within the ranch, a situation that is described as illegal grazing in the case of Kishushe cooperative ranch. Some of these ranches

are overgrazed, such as Oza and Mbulia, whose members live outside the ranch. However, members of Ndara 'B' and Isangaiwishi live within the ranch. In the case of Isangaiwishi ranch, there is a serious tenure conflict, with some people from Mgange area claiming ownership, while those already residing within are defending their residence and claim of ownership[25].

It is clear that ownership has a bearing on the management and operation of the ranches. For instance, analysis of their operational status indicates that, on average, private company ranches are operating at 52% TLU per hectare,[26] individual ranches at 40% TLU per hectare, DACR at 2% TLU per hectare, while the cooperative and group ranches, are not operational as a unit (RoK 1996). The average for all the ranches is 20% TLU per hectare.[27] However, it is worth noting that the group and cooperative ranches are doing well comparatively, with members taking care of their own livestock individually, but grazing them communally. Initially, these ranches, as corporate units, had a central herd owned by the respective members. Based on livestock density and assuming uniformity in pastures and water availability in all ranches, individual/partnership ranches lead with 3.67 TLU per hectare and a total of 74,000 head of cattle. Group ranches with 72,000 head of cattle follow with 1.6 TLU per hectare. The private company ranches with 19,000 head of cattle have a density of 0.14 TLU per hectare, while DACRs (800 head of cattle in Maungu and Kasigau ranch and 300 goats in Mgeno ranch)[28] have a density of 0.005 TLU per hectare (RoK 1998). In total, there are about 223,000 shoats, both in ranches and in the unregistered communal grazing areas.

Most of these ranches experience several problems, ranging from environmental to management ones. Environmental problems include water shortage, frequent droughts, unplanned fires and thick woody bushes. Predation, competition and destruction of infrastructure by wildlife is very common with, in some situations, injury or death of the herders. Theft of livestock is also a problem, especially in ranches far from the main settlement areas. For instance, Bura and Kasigau ranches, often lose their livestock to cattle rustlers from across the Kenya-Tanzania border.

However, management-related problems seem to be the main cause of the declining and virtually collapsing ranching activities. When these ranches were gazetted, ranching activities were encouraged through livestock extension services. To enable ranching operations and the acquisition of loans, these ranches were registered as corporate bodies. Several ranches acquired a loan from AFC. Some of them were unable to repay and are still heavily in debt.

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[25] The principal researcher of this study planned to attend a conflict resolution meeting in Isangaiwishi through the Range Management Officer (Mr Mwenjewe), Because of the nature of the meeting and the expected tensions, it was necessary to get clearance from the District Commission. Permission was denied. However, the meeting did not take place.

[26] This is the number of livestock that a certain rangeland can sustainably support per hectare. The TLU is a common unit used to express the total amount of livestock present – irrespective of the specific composition and weight. An "Exchange Ratio" has been developed, whereby different species of different average size can be compared and described in relation to a common unit. This unit is 1 Tropical Livestock Unit (TLU). Various methods of obtaining exchange ratios among species have been used, but none has been completely satisfactory. Different formulae for estimating TLUs may be utilised in different parts of the world, depending on common livestock varieties. (e.g. 1 TLU = Camels 1.0; Cattle 0.7; Sheep/Goats: 0.1).

[27] Taita Taveta District Specific Environment Action Plan, March 1996, p. 10, estimated the operational status of all the ranches at 20% TLU per hectare.

[28] Among the DACR, only Maungu and Kasigau are operational in terms of cattle ranching.

For instance, Kasigau owed AFC Ksh. 10 million (US$ 130,000) by the end of 1997. To clear the debt, its members planned to sell all the cattle and lease or sell a portion of the ranch. Sagalla ranch owed Ksh. 8 million (US$ 105,000), while Mgeno ranch owed Ksh. 10 million (US$ 130,000). Both intended to sell or lease part of the ranch to repay the debts. Currently, most of these ranches have not cleared their debt, apart from Taita ranch run by the Gallana Cattle Company, whose loan repayment is satisfactory (RoK 1998). Despite this, the company closed its ranching activities in the year 2000. Poor management of the indebted ranches has resulted not only in the failure to service their loans, but also in other livestock production problems. Some ranches hired unqualified staff or have no managers, as is the case with Maungu, and are managed by the unqualified owners or directors who lack initiative and entrepreneurial skills. Nevertheless, ranches that have collapsed intend to restart ranching activities alone or combined with a wildlife sanctuary. However, most of these ranches cannot raise the required capital and, in most cases, are embroiled in leadership wrangles.

There are several areas where communal grazing is practised. They include Mgeno, Mramba, Kishushe, Kisimani/Rukanga, Jipe, Mwachabo, Kishamba, Njukini and Kitobo areas. These areas are more or less like the group ranches and are mostly utilised by neighbouring ranches or communities.

Small-scale farms and smallholdings

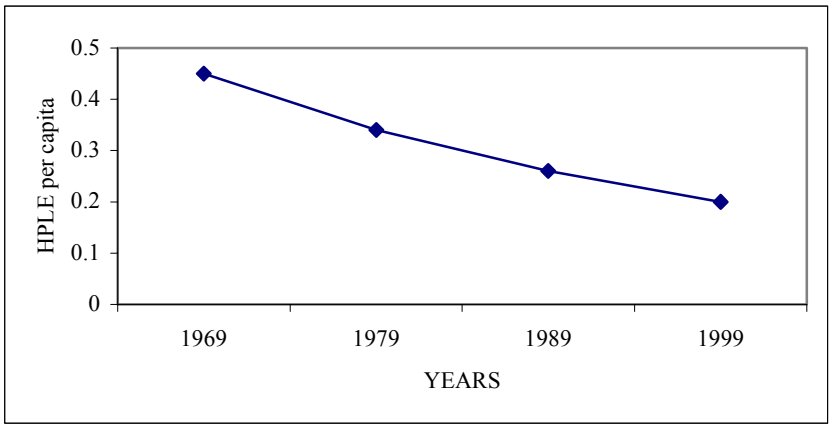
Smallholdings comprise the main agricultural area, which is about 7% (119,600 ha) of the total landmass of the district (Table 6.3b). This area covers mainly the high and medium potential zones. The main economic activities in the high potential zone include the farming of maize, coffee and vegetables and zero grazing. Medium potential areas are used for maize, beans, sorghum, cowpeas and cassava farming etc. These areas are also used for settlements, with a population of about 250,000. Because of high population pressure and land scarcity in these areas, people are moving to the trading centres and, where possible, to major towns in search of jobs.[29] However, the majority are moving to the 'high potential' areas in the lowland. In some cases, migrants to the lowlands lobby and exert pressure for the subdivision of group ranches by actual settlement, while others encroach on the forest reserves, dams and even private land. These encroachments are not only by the people neighbouring the respective areas, but also by people from several kilometres away. Some of the most recent settlements include Mwachabo, Maktau, Mgeno, Kasigau, Mbulia and Kishushe.

Agriculture as a land use in the smallholding areas is constrained by several factors, including decreasing size of land holdings, rugged terrain, droughts, traditional beliefs, wildlife menace, unclear land tenure in the newly settled areas and other human resource problems. The sizes of the holdings are decreasing with increasing population. The size of the holdings varies tremendously. About 63% of total smallholding farms in the hills are less than 1.5 acres by title deed registration and even smaller due to further subdivision and inheritance. In some situations, the farm size is extremely small to the extent that, under current farming methods, they cannot support the respective households. Leonard (1989) describes such a situation as 'near landlessness' and uses a high-potential land equivalent (HPLE) per

[29] There is limited immigration into the district. Net lifetime migration for Taita Taveta district was negative 7,759 people in 1979 (Lifetime Migration by District and Province in 1979 in RoK/CBS undated Table 5.3)

capita measure to illustrate this. Thus, analysis of the HPLE in Taita Taveta District for the years 1969, 1979, 1989 and 1999, indicates that, for Taita Taveta District, the HPLE per capita has been decreasing from 0.45 in 1969, to 0.34 in 1979, to 0.26 in 1989 and 0.20 in 1999, a decrease of 55.6% (Figure 6.1).[30] In addition to the decrease of the HPLE per capita, small- scale holdings are further constrained by the terrain, which is rugged with steep slopes. It exposes the soil to erosion, leading to poor soils, lower yields and the silting of dams and wetlands. Droughts are also common and occasionally devastate the district which is not self-sufficient in the first place, particularly in maize, the main staple food. Some of the local communities also cling to some of the traditional beliefs, which limit agricultural production. For instance, farmers in the hills often do not utilise the long rains in the belief that there are more pests and diseases during the long rains. The agricultural extension services have in the past campaigned to change this belief, but with little success.[31] Wildlife menace is not a major problem in the hills, although there are hogs (bush pigs), monkeys, baboons and porcupines, which are sometimes terrible pests, particularly in areas adjacent to the forest reserves. The problem of wildlife is intense in the newly settled areas in the lowlands, particularly in those areas nearest to the park or along wildlife migratory routes. These areas also experience land tenure-related conflicts, particularly in some ranches where people have settled or are squatters. Other factors constraining farming relate to lack of knowledge, capital and marketing infrastructure.

Figure 6.1
Taita Taveta high-potential land equivalent (HPLE) per capita



Settlement schemes

Settlement schemes are mainly located on government land, but could also be located on Trust Land or land acquired by the government from a private individual. They are set under the Agriculture Act, Cap. 318. The department of Land Adjudication identifies suitable state

[30] HPLE per capita is calculated using land size based on agricultural potential and population size, where 1 ha of high potential is equivalent to 5 ha of medium potential and 100 ha of low potential land (see also Rutten 1992: 77, Table 2.2). In the case of Taita Taveta District, the park is excluded from these calculations.

[31] Interviews with J.N. Mwanjewe, Range Officer, 22 February 2000.

or Trust Land, which is then subdivided into viable plots for settlement and agriculture. After subdivision, applications are invited from landless people from any part of the country. In most cases, there are more applicants than the land can accommodate and balloting has to be done. Whoever wins is shown the parcel after paying the adjudication charges. Settlement schemes are important, as they absorb population overflow from the high population density areas. However, in most cases, such as in Taita Taveta District, these schemes are located on marginal land that is fragile and susceptible to ecological perturbations.

Table 6.8
Settlement schemes in Taita Taveta District

Scheme	Size (ha)	Remark
Lake Jipe	11,716	- is in Taveta division - land bought from private owner - demarcated and registered
Maungu-Buguta	23,786	- is in Voi division - located on government land/squatters - demarcation going on
Mwachabo	11,979	- is in Mwatate division - located on government land/squatter - demarcation going on
Wananchi	9,070	- is in Mwatate division - located on land bought from ranch - demarcation is complete
Total	56,551	
Proposed schemes		
Ikanga	Unknown	- is in Voi division - government land
Bomani	Unknown	- is in Voi division - located on government land - there people already

Source: District Land Adjudication map (DLAO/TT office) and interviews with DLAO/TTMr Orioki (March 2000).

Mining

Geological surveys (Saggerson 1962; Sanders 1963) indicate that the district is rich in various types of minerals, such as asbestos, graphite, kaolin, clay and gemstones. Mining is an important land use in the district, although it has not been well developed and is riddled with tenure conflicts. It is also argued that the mineral occurrence in most sites is too low to warrant large-scale mining. The exploitation of these minerals is largely done by the private sector, both companies and individuals. It started in the 1940s, when the mining of kyanite began in Murka and stopped in 1961, due to high costs. Currently, the mining is mainly for gemstones in Kasigau and Kapanga areas, including part of Tsavo West. Both legal and illegal small-scale mining is also done on several ranches, including Kasigau, Choke, Mkuki, Kambaga, Kutima, Lualenyi and Maungu. The main types of gemstone include green garnets, rubies, red garnets, tanzanite and green tourmaline.

Conclusion

Land tenure reform involving titling or individualisation has been based mainly on the economic argument that giving security of tenure would enable landowners to pledge their land as collateral for the development of capital. Thus, the owners will have incentives to make long-term investments either in appropriate management or direct investment on land, as there is assurance of commensurate returns on that investment. This orthodoxy has been the organising framework for land reforms in Kenya. Despite nearly a century of attempts to push towards the individualisation of land, the traditional institutions still persist, especially in the rural areas. Different gradations of formal and traditional institutions characterise land use and tenure in Kenya. Indigenous communal land tenure, private property and state property now coexist, overlap and often contradict each other, especially for wildlife management, since wild animals (which are state property) know no boundaries.

There are three main land tenure arrangements in Kenya, namely, customary, public and private. In Taita and most parts of Kenya, customary tenure arrangements have been undermined in favour of public and private arrangements. Public land has also been diminishing in favour of private land. The management arrangements of public land – the protected areas, in particular – are 'private', the government or local government being the 'private owner'. This is so under the exclusionary management practice of protectionism. Nonetheless, land use and tenure in Taita present a unique phenomenon. The Tsavo National Park covers over 62% of the district and no direct benefits accrue to the local people. Much of the remaining land in the lowlands, covering over 24% of the district, is also utilised by wild animals, which are also regarded as government 'property'. It is within this area where wildlife-human conflict is rife, with some pockets of intense conflict.

The mention of the notion of land tenure in Kenya triggers anxiety among most Kenyans. Land in contemporary Kenya is highly valued in the context of private ownership, even by the pastoralists who traditionally viewed land as a common resource for larger groups, such as clans or kinship groups. The drift towards land individualisation has generated unanticipated outcomes in Taita, especially in the case of ranches and small-scale holdings. The limited high potential agricultural land is densely populated, with about 63% of the land holdings covering less than 1.5 acres per household. Through customary laws, this land has been passed on from generation to generation, with a reduction of the high-potential land equivalent (HPLE) per capita from 0.45 in 1969 to about 0.2 in 1999.

Most ranches in Taita have failed to perform under various tenure arrangements. These ranches are currently in debt and are not able to generate income for repaying their loans. Droughts, livestock depredation, management problems, cattle rustling and ownership wrangles are the main hurdles. If these ranches were well managed, they could contribute significantly to the social and economic development in Taita. With a component of tourism and other conservation-based enterprises, these ranches can contribute significantly towards wildlife conservation.

Plate 1
Group discussion at sub-chief's office in Kishushe (left) and under a tree shade in Kasigau (right).

Plate 2
Tree cutting for charcoal burning in Kasigau area

Plate 3
Harvesting of resin from pine trees (*Pinus patula,* Schiede ex Schltdl. and Cham) in Mbololo

Plate 4
Maktau polytechnic, built by Kenya Wildlife Service

Plate 5
Calves in Kasigau ranch and type of fencing round the kraal

Plate 6
Bura-Maktau 30 km electric fence (right) along THWS northern boundary and fence of branches (left side) on the eastern border, where Wumari-Sechu and THWS are contesting ownership of about 100 hectares of land

Plate 7
A lion shot by Kenya Wildlife Service rangers in Kasigau in May 2002 for killing 60 shoats

Courtesy, East African Standard May 11, 2002

Plate 8
The President of Kenya torches about 12 tons of ivory (1989)

Courtesy,http://www.ivorynet.com/about.htm

7

Wildlife and forest conservation

This chapter presents an overview of the typology of wildlife and forest conservation, with a focus on entitlement rights. Thus, we discuss the typology in the perspective of who owns, who uses and who intervenes in wildlife and forest conservation-related conflicts. This is discussed in the context of legal, policy and institutional issues. We discuss, in particular, the legal and policy regime, broadly focusing on the environment, while highlighting key issues in wildlife and forest biodiversity conservation. The chapter also presents a historical overview of both wildlife and forest biodiversity conservation from the precolonial period to the present time.

The biodiversity conservation entitlement typology

Legal and policy issues

Biodiversity conservation efforts in Kenya concentrate mainly on wild animals and forest resources in their natural environment (*in situ conservation*). In particular, wildlife conservation has been mainly for animals with tourist value, while forests have been conserved mainly to preserve catchments areas. In recent times, conservation efforts have expanded to include genetic resources (*ex situ conservation*). In general, the approach has been 'protectionism', by which specific areas (protected areas[1]) are set aside and gazetted as protected areas, thus cutting off any human activities, ranging from access by act of passage to harvesting of

[1] A protected area refers to any site subject to a legal or administrative protective regime designed to conserve the species inhabiting it, including natural reserves. Natural reserves in an African context denote areas placed under entire public control, in which any form of public undertaking involving alleviation of the configuration of the soil or the character of the vegetation and any act likely to disturb the fauna and flora is forbidden, and it is only through written permit from the competent authorities that particular activities can be carried out. At a global level, a protected area is defined as: 'An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means' (IUCN 1994).

various products. These areas, particularly wildlife conservation areas, have initially been used only for game hunting by licensed hunters and for game viewing, mainly by foreign tourists. Currently, tourism remains the major use of most wildlife conservation areas. However, the Kenya Government National Development Plan for 2002 to 2008 (RoK 2002b) acknowledges that policy failure in wildlife and forest conservation sectors is largely due to over-reliance on the prohibition of the use of wildlife for consumption and of the use of resources in protected areas.

Nevertheless, the Kenyan legal and administrative approach to conservation is protective in nature and is characterised by a slow evolutionary process. The colonial and immediate post-colonial perspectives revolved around preservation as the main organising concept. This was because of the observed widespread wanton destruction of forested land, the expansion of agricultural land and the over-hunting of game.[2] In this context, conservation was conceived in the narrow sense of protecting selected natural resources, such as wildlife species and topsoil in vulnerable landscapes, from any human activity (RoK 1965: 39). For development sectors, the emphasis was on the need for rapid economic development. Consequently, environmental management was regarded as a constraint, limiting economic development. These two desires to protect and, at the same time, ensure rapid economic development resulted in conflicting cross-sectoral interests.

Before the enactment of Kenya's Environment Management and Coordination Act (EMCA)[3] in January 2000, there were two basic types of legislation: the sectoral model, in which legislation is formulated in line with natural resources, and the comprehensive or framework legislation model. In the sectoral type, separate legislative regimes exist for the regulation of the exploitation of specific resources such as land, water, forests and wildlife. In the latter type, the legislation either covers various aspects of the environment (*i.e.* there are laws that provide for the protection of the environment in the Acts covering various development sectors) or merely establishes an enabling legal framework for the elaboration of detailed regulations and a central environmental agency (Wilkinson 1985). Under these kinds of arrangement, problems of coordination of policies, jurisdictional overlap and conflicts, and bureaucratic inertia were evident. For instance, although there are Acts dealing with protected areas and natural reserves, such as the Wildlife Act and the Forest Act, scanty provision for the same subject is contained in other Acts such as the Local Government Act, the Agriculture Act and others. However, with the enactment of EMCA, these problems may be solved, depending on government commitments, political will, resources and institutional arrangements for its implementation and enforcement.

The other major character of Kenyan environmental legislation for protected areas and natural reserves is command and control. It relies on implementation processes that largely consist of 'sanctions' to ensure the realisation of its objectives (Hawkins 1984). Thus, prohibitions and punishment of violators rather than assessment, planning and coordination are its prime enforcement techniques. This means that the legislation is 'rule-oriented' rather than 'management-oriented', as was noted by UNEP (1979: 16). Management-oriented and compliance strate-

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[2] Game animals refer to animals hunted for trophies, such as ivory, rhino horn etc. They also include large herbivores, which provide 'bush meat'.

[3] The Environmental Management and Coordination Act received Presidential Assent on 6 January 2000 and came into force on 14 January 2000, when it was gazetted.

gies that rely on informed persuasion and emphasise prevention, social repair and maintenance, would contribute more to environmental conservation than coercion through the instrumentality of criminal law. Nonetheless, EMCA is expected to moderate the specific Acts and ensure a management-oriented approach (Part XIV, Section 148). It will also enhance the merits of specific Acts that allow public agencies to make binding legal decisions on the basis of broad discretionary powers. This would allow for flexibility in decision-making, which is imperative, if legislation is to respond to social and policy change. This legislation also allows for any adjustments which can be made from time to time.

In terms of policy, various changes have taken place, with the major change occurring in the aftermath of the Stockholm conference in 1972, when the concept of environmental management entered the Kenyan development plan. In the first instance, this concept gave a chance to the relevant authorities to assess development practices and the environmental problems it had created. In the second instance, it facilitated an evaluation of the policies and institutional frameworks for environmental management in the context of development. Consequently, clear environmental policy statements were made in subsequent development plans. In the evaluation, however, the legislation on environmental conservation was not considered. The development plan recognised this, together with the fact that institutional arrangements have been the limiting factor for rational environmental management. The development plan proposed fundamental changes in this situation, the product of which is the new Environmental Management and Coordination Act of 1999. In achieving this, it is worthwhile to note the role of various stakeholders, particularly the donors, NGOs and civil society in general.

Protected wildlife and forest biodiversity areas

At the global level, there are eight classes of protected area, based on the IUCN classification of protected area management categories presented in Box 7.1. Kenya's protected biodiversity conservation areas fall mainly under the first five classes, but with specific entitlement arrangements, as will be discussed in the next subsections.

Protected biodiversity conservation areas in Kenya cover about 61,956 km^2 and are characterised by varying levels of legal protection and types of land use. The area represents about 8% of Kenya's total area. These protected areas are categorised as national parks, nature reserves, national reserves, game sanctuaries, forest reserves, private reserves, biosphere reserves and Ramsar wetlands (Table 7.1). Table 7.1 (Annex 1) presents a complete list of Kenya's national parks and reserves.

National parks

There are 27 national parks in Kenya, including marine national parks, covering a total area of about 30,000 km^2. This is about 4.9% of Kenya's total area and about 48% of the total protected conservation areas. The national parks fall under category II of the IUCN classification. They are relatively large natural areas not materially altered through human activities and extractive resource uses are not allowed. However, the most visited parks are considered to be at risk of degradation from the high number of tourists, tourist facilities and infrastructure. In terms of land tenure, they fall under the state and are managed directly by the Kenya Wildlife Service.

Box 7.1
IUCN classification of protected areas based on management categories

Strict nature reserve/scientific reserve: to protect and maintain natural processes in an undisturbed state in order to have ecologically representative examples of the natural environment available for scientific study, environmental monitoring, education and for the maintenance of genetic resources in a dynamic and evolutionary state.

National parks: to protect outstanding natural and scenic areas of natural and international significance for scientific education and recreational use. These are relatively large natural areas, not materially altered by human activity, where extractive resource uses are not allowed.

Natural monument/natural landmarks: to protect and preserve naturally significant natural features because of their special interest or unique characteristics. These are relatively small areas focused on protection of specific features.

Nature reserves/wildlife sanctuary: to ensure the natural conditions necessary to protect naturally significant species, groups of species, biotic communities or physical features of the environment where these may require specific human manipulation for perpetuation; controlled harvesting of some resources can be permitted.

Protected landscape and seascape: to maintain naturally significant natural landscapes with characteristics of the harmonious interaction of man and land, while providing opportunities for public enjoyment such as recreation and tourism within the normal life style and economic activities of these areas. These are mixed cultural/natural landscapes of high scenic value where traditional land areas are maintained.

Resource reserve: to protect the natural resources of the area for future use and prevent or contain development activities that could affect the resource pending the establishment of objectives which are based upon appropriate knowledge and planning. This is a 'holding' category used until a permanent classification can be determined.

Anthropological reserve/natural biotic area: to allow the way of life of societies living in harmony with the environment to continue undisturbed by modern technology. This category is appropriate where resource extraction by indigenous people is conducted in a traditional manner.

Multiple use management area/managed resource area: to provide for the sustained production of water, timber, wildlife, pasture and tourism, with the conservation of nature primarily oriented towards the support of economic activities (although specific zones may also be designated within these areas to achieve specific conservation objectives).

Source: IUCN 1978 updated in http://www.ontarioparks.com/iuc.html (July 2002).

National reserves

National reserves were designated as relatively large conservation areas where a certain degree of human activities, particularly grazing, could be allowed. However, based on the IUCN classification, they fall under the same category as the national park, which is Category II. There are 31 national reserves, covering about 2.7% of Kenya's total area. These reserves are vested in the ownership of the local government in trust for the local people in the particular district and administered by the district local council, with the exception of Shimba Hills and Marsabit national reserves, which are managed directly by the KWS. In general, national reserves can be managed by KWS, but only through agreement with the councils. The local councils have been instrumental, not only in running, but also in setting aside a

number of conservation areas throughout the country. In the reserves, land uses other than nature conservation may be specifically allowed. The conditions controlling such uses are included in regulations agreed with the local authority at the time of gazetting. Exploitation in the form of seasonal water rights and grazing by pastoralists is usually permitted in some areas.

Table 7.1
Categories of protected areas, their number and coverage

Protected area	Number	Area (ha)		%
National parks	23	2,908,635		47.56
Marine national parks	4	54,000		0.88
Nature reserves	?	52,679 [a]		0.86
National reserves	25	1,425,240		23.30
Marine national reserves	6	70,609 [a]		1.15
Game sanctuaries	?	500		0.01
Forest reserves	23	1,582,116		25.87
Private reserves	6	13,363 [a]		0.22
Biosphere reserves	(4)	(851,359) [b]		
Ramsar wetlands	1 (1)	9,000 [a]	(18,000)[b]	
Proposed protected area	92	(648,410) [a.b]		
Total		6,116,142 [a]		100.00 [a]

[a] Indicates the minimum estimates of the area.
[b] Figures in parentheses do not contribute to the total, because they represent sites already included in other categories, or yet to be protected.
[c] ? = Number not known
Source: Updated from Kenya Wildlife Service list (KWS headquarters).

Game sanctuaries

Local sanctuaries perform the function of protecting a locally significant wildlife resource from disturbance, primarily hunting. Vegetation is not protected. There are two categories, national sanctuaries and private wildlife sanctuaries and reserves. There is only one national sanctuary in Kenya, the Maralal National Sanctuary in Samburu. It is managed by KWS and there are no special features to differentiate it from the national parks. Therefore, it falls under Category II of the IUCN classification of protected areas. There are also sanctuaries within national parks, such as the Ngulia rhino sanctuary, which was set aside in 1984 for rhino protection in Tsavo West. Such sanctuaries are created for a specific purpose, particularly in the effort to protect some wild animals that are threatened. They serve as safe haven or refuge for threatened species and fall under Category IV of the IUCN classification.

Privately owned areas that contribute to conservation of wildlife are mainly individually or group owned. Most of these areas meet both commercial and conservation objectives. The use of such areas varies. For instance, Taita Hills Wildlife Sanctuary, owned by Hilton in Taita and Mwalunganje Wildlife Sanctuary, owned by a group of local community members in Kilifi district, are mainly involved in tourism, while others, such as Lualenyi ranch in Taita, may practise game cropping and cattle ranching. In some cases, private sector actors have taken part in the conservation effort. For example, some ranches in Laikipia bred rhino for re-

introduction into national parks where they were almost extinct. The role of the private sector in wildlife conservation in Kenya should not be underestimated.

Forest reserves and nature reserves

Nature reserves are defined as areas which are found within forest reserves and are declared for the purpose of preserving their natural amenities, flora and fauna. No exploitation is allowed within them. The nature reserves fall under Category I, while the forest reserves fall under Category II of the IUCN classification. Both the nature and the forest reserves fall under the mandate of the Forest Department within the Ministry of Environment and Natural Resources. The establishment of forest reserves can be initiated at any level, from the local level by the county council to the minister in charge of forests at the national level. In practice, nature reserves are administered by the Ministry of Tourism and Wildlife, District Game Warden and the KWS and by staff of the Forest Department (KWS 1990). Forest areas on trust lands are managed by the county council, while national monument forests fall under the management of the trustees of the National Museums of Kenya.

Table 7.2
Nature reserves in Kenya

	Area (ha)	Date
Arabuko Sakoke	4,332	1979
Nandi North	3,434	1978
South-Western Mau	43,032	1961
Uaso Narok	1,575	1981

Note: Arabuko Sakoke was proclaimed as nature reserve in 1979, covering 4,332 ha and in 1990 was proclaimed a national park, with a total area of about 6,000 ha.

Source: UN list of national parks and protected areas, 1993. Prepared by the World Conservation and Monitoring Centre of the IUCN Commission on National Park and Protected Areas IUCN/UICN.

Biosphere reserves

The biosphere reserves are international conservation areas of interest. Their designation is through an international scientific programme, the UNESCO Man and Biosphere Programme (MAB). They are designated not exclusively for protection of unique areas, but for a range of objectives, including research, monitoring, training and demonstration, as well as conservation. In most cases, the human component is vital to the functioning of the biosphere reserves. Table 7.3 lists the biosphere reserves of Kenya.

Table 7.3
Kenya's biosphere reserves

Biosphere reserve	Other designation
Amboseli	National park
Kiunga	Marine national reserve
Malindi-Watamu	National park and reserve
Mt. Kenya	National park
Mt. Kulal	None

Ramsar wetlands

There are four Ramsar wetlands in Kenya, namely Lake Baringo, Lake Bogoria, Lake Naivasha and Lake Nakuru. Ramsar wetlands are designated through an International Convention, the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention). The Ramsar Convention was signed in Ramsar (Iran) in 1971 and came into force in December 1975. Each state party is obliged to list at least one site. Kenya became a party on 5 June 1990 and Lake Nakuru National Park was proclaimed as a Ramsar Wetland, while Lake Naivasha was proclaimed in 1995. Lake Bogoria and Lake Baringo were designated as Ramsar sites in 2001 and 2002, respectively (Table 7.4).

Table 7.4
Kenya's Ramsar sites

Site	Designation date	Area (ha)	Other designation
Lake Baringo	10/01/02	31,469	National reserve
Lake Bogoria	27/08/01	10,700	National reserve
Lake Naivasha	10/04/95	30,000	None
Lake Nakuru	05/06/90	18,800	National park

Wildlife biodiversity conservation

Wildlife resources

Wildlife conservation in Kenya takes place mainly within natural habitats, that is, *in situ* conservation. This type of conservation has several advantages over the alternative *ex situ* conservation. If no land purchase is required, establishment and maintenance costs are low for the number of species conserved. Many species, including unknown ones, are conserved, without the need for specialised conditions and treatment. The same applies to both known and unknown environmental services, whilst still allowing some mixed use and future option values. Research on wild animal source-sink population dynamics suggests that conservation territories are essential population sources, or zones of excess reproduction, needed to repopulate other areas where endangered species survive, but where mortality exceeds reproduction (Alverson *et al.* 1994). The basis of *in situ* conservation in most countries, including Kenya, is the system of protected areas. Few of these protected areas are self-contained ecosystems for wild animals. Seasonal animal movements occur between the protected areas and the adjacent dispersal areas, most of which is privately owned and under other land uses. With growing human population and intensification of activities in these dispersal areas, conflicts between many of the remaining wildlife population and other land uses are increasing. Resolution of these conflicts is one of the current major conservation challenges.

Although the number of protected areas has increased considerably in Kenya, there are several critical issues to note concerning the size of protected areas, species composition, dispersal areas and human-wildlife conflicts (Box 7.2). Nevertheless, in Kenya, wildlife and people still coexist over large areas of the country, as three-quarters of Kenya's wildlife is

found at one time or another outside the protected areas.[4] Indeed, the wildlife of most protected areas disperse well beyond the boundaries of the protected areas during the wet season and others during the dry season, but the proportion outside the protected areas at any given time is the subject of fierce debate.

Box 7.2
Critical issues affecting wildlife conservation in protected areas in Kenya

(i)	Two parks, Tsavo East and West, account for 40% of the total protected area.
(ii)	Three of Kenya's 19 biotic communities are not represented in these protected areas; a further eight communities are represented in only one or two protected areas and over 75% of the total protected area lie in savannah grassland, semi-arid and arid areas of the country.
(iii)	Most protected areas suffer damage through poaching, pollution, and overuse by tourists, encroachment and related human-wildlife conflicts.
(iv)	Most protected areas do not encompass complete natural ecosystems; they are therefore critically dependent upon areas beyond their boundaries.

Compiled from NBU (1992).

Wildlife resource utilisation includes use both for consumption and non-consumption purposes. Use for consumption includes hunting as a sport or for game meat and trophies. Use for non-consumption purposes refers mainly to game viewing by foreign tourists. Wildlife resources in Kenya are viewed in terms of tourism, as tourism has a long-standing tradition in Kenya. After independence, tourism was the fastest growing sector of the nation's economy.[5] Only coffee and tea production earned more foreign exchange at that time. Income from tourism first exceeded that from coffee in the 1980s (Figure 7.1). Between 1990 and 1993, 3.23 million foreign visitors came to Kenya, representing about 5% of the tourist trade in Africa and about 28% of that of Eastern Africa. In the same period, tourism accounted for about 19% of the nation's GDP and generated over 120,000 direct jobs. However, through several factors at the international and national levels, tourism started to dwindle in 1995 and became second after tea in 1998. It dwindled further and was surpassed by horticulture in the year 2000. Currently, it is the third foreign income earner.

[4] The notion of three-quarters of Kenya's wildlife being outside protected areas is very controversial and has been contested. Dr Richard Leakey, former Director of KWS, believes that this is not the case, but the reverse, while his immediate successor, Dr Western believes that it is the case. However, the findings of the present study, based on literature review, discussions and personal experience, support neither view. In particular, the population status of wild animals is highly influenced by environmental conditions, some of which are seasonal and dynamic, such as weather and socio-economic factors. Others may be static, such as salt licks and watering points. Wildlife movement is cued by the factors that influence their survival and, therefore, in one season, about 75% may be within the protected areas or *vice versa*.

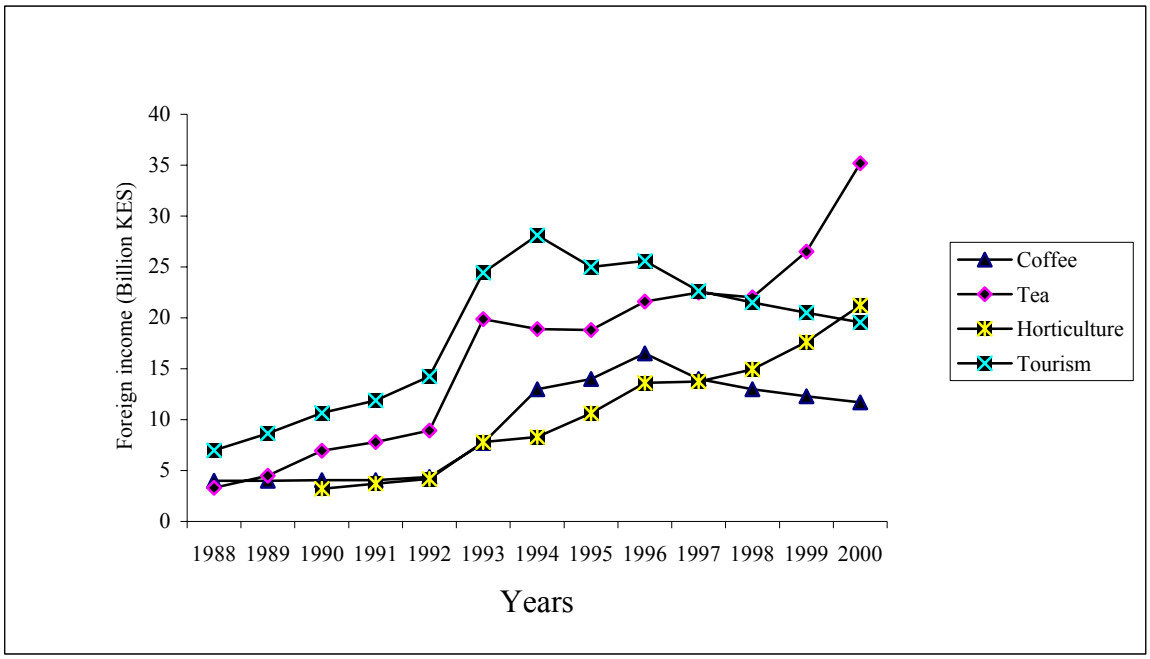
[5] The tourist industry does not bring income to as many people as coffee or tea sales, as tourist facilities are concentrated in Nairobi, along the coast and in national parks. Moreover, foreign companies own the industry and relatively few indigenous Kenyans benefit from it. (http://www.blacknetuk.com/homeland/kenya.htm, September 2002).

The history of wildlife conservation in Kenya

The precolonial period (before 1900)

In precolonial times, wild animals and the environment generally played a significant role in the development of cultural values, which in turn significantly influenced the development of production and consumption systems. For instance, several communities evolved survival strategies as a response to limiting environmental conditions of scarcity and hostility in situations of extreme weather conditions (Russell 1997). Indeed, cultural diversity – norms, beliefs, experience and local traditional adaptations – often parallels ecological diversity and has contributed to the conservation and sustainable use of the environment. Thus, wildlife and forest conservation was closely linked to the imperatives of coexistence between humans and the natural environment.

Figure 7.1
Foreign income from coffee, tea and tourism between 1988 and 2001



Source: Central Bureau of Statistics (Economic Surveys and Statistical Abstract for various years) and International Trade Centre (2001) for income from horticultural exports[6].

Substantial ethnographic and historical studies in Africa show that local-level institutions were effective in the management of the natural environment, including both fauna and flora, hence wildlife and their habitats. Examples of effective local management of natural environment, particularly rangeland resources, have been described for the Basotho in Lesotho (Shoup 1987), the Boran in Ethiopia (Helland 1982: 239-258), the Barabaig in Tanzania (Lane 1991), the Berber in Morocco (Giles *et al.* 1992: 281-304) and the Turkana

[6] Horticultural exports include fruits, vegetables and cut flowers.

(McCabe 1990: 81-103), Gabbra (Stiles 1992: 41-52), Maasai (Kituyi 1990) and Keiyo (Chebet and Dietz 2000: 102-124) in Kenya. It is argued that the development of these traditional systems of resource management commonly described as common property regimes, were a result of two main characteristics of village life (Runge 1986: 623-635). These are (i) dependency on natural resources that vary greatly in quality and productivity, where exclusive use rights would result in a highly inequitable distribution of productive potential; and (ii) poverty and dependence on a variable natural resource base, which gave people incentives to develop a variety of cooperative and reciprocal relationships.[7]

Nonetheless, people have been using wildlife as a biological natural resource in various ways, including uses for both consumption and non-consumption purposes, for a long time. Archaeological sites indicate subsistence hunting by hunter-gatherer groups through the ages. Cultivators who arrived in later centuries also hunted. Apart from hunting, different groups of people developed special relationships with specific species of wild animals, from which myths, beliefs and other components of their value system were developed. Different communities appreciated certain species and disliked others, particularly those associated with a bad omen. Some animals were hunted for specific products to be used locally.[8] For instance, the Taveta people made ivory armlets for male elders,[9] while the Kamba people used ivory for earplugs to be worn in the earlobes by circumcised women until they gave birth.[10] Many other wildlife products, including meat, hide and skin, teeth, bones, shells and fur, were also valued for specific purposes by various communities and were traded with other non-wildlife products, such as grains and various metal or wooden tools, equipment or weapons. For instance, trade among and between the Maasai, Kikuyu and the Chaga was very common. The commodities that were traded consisted of hides and skins, in exchange for grains and plantation crops. Apart from the value of wildlife for consumption, there were also non-consumption values, which included aesthetic and socio-cultural values. However, the use for consumption by the traditional hunters for whom wildlife provided food, clothing and tools, and whose population numbers were small, made a negligible impact on the great herds. Thus, it did not affect the population status of the specific wild animal species. Moreover, the traps and weapons used in hunting (such as bow and arrow, poisoned arrows, spears, club and sticks) were far much less efficient compared with modern traps and weapons such as guns and ammunition.

As early as AD 100, Greek ships came down the Red Sea, bringing goods to the East African coast and taking back wildlife products. During the period from AD 100 to AD 1498, apart from ivory, the export of rhinoceros horn, tortoise shell, leopard skin and other game trophies became increasingly important (Frisk 1912: 116).[11] This trade grew as the demand

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7 Runge (1986: 5), describes three main reasons for the development of common property regimes. The third one is people's inability to afford the transaction costs associated with private property, due to poverty.

8 Hunting might not necessarily have been for one item, such as ivory armlets or earplug ornaments; otherwise, sufficient ivory for such items might have been available from animals that suffered a natural death.

9 National Museums of Kenya, display 1906-158 Taveta, Sir Fredrick Jackson, date 1870-1880 (personal observation in the museums, Nairobi, Kenya).

10 National Museums of Kenya, display 1906-143a and b Kamba, Sir. Fredrick Jackson, date unknown (personal observation in the museums, Nairobi, Kenya).

11 The earliest surviving description of East Africa's coast is the '*Periplus of the Erythrean Sea'* (Frisk 1912 and translation 1927: 116), a Greek Trading Handbook. It describes in detail the trade between the East

for the wildlife products, particularly ivory and rhino horn, increased. For a long time, ivory proved to be a major trading item between Africans, Persians and Indians. It developed into extensive commercial hunting, which was carried out on a relatively large scale by Arab traders over the past few centuries, exploiting mainly the elephant for ivory, and certain other species for skins and other trophies. The trade in these wildlife products motivated the slave trade through the demand for porters to ferry them from the interior to the coast. It is recorded that, by 1840, 'Kamba caravans were observed carrying up to 400 frasilas[12] of ivory to the coast' (Guillan 1866: 14 in Ogwang 1997: 43). Indeed, it may be argued that, to some extent, human suffering related to the slave trade is one of the reasons why Africans developed supposedly negative attitudes towards wildlife.

Conflicts resulting from the various disasters caused by wildlife existed. Such disasters included human injuries and death, livestock depredation and the transmission of diseases. However, several tribes, such as the Taita, believed that traditional medicine protected them from the wildlife and so they only rarely experienced wildlife problems, if at all. They believed that such problems and many other environmental problems occurred only when certain taboos were broken. However, at the same time, according to the Taita people, land was not scarce and human population parameters such as size, density and distribution were such that the probability of contact with wildlife was minimal, despite the large numbers of wildlife which, if described today, would appear to be an exaggeration, notes Leakey and Morell (2001 p. 147).

The colonial period (1888-1963)

Formal wildlife conservation and management in Kenya can be traced back to 1897, when the British Foreign Secretary called for an international agreement on ivory trading and wildlife protection in Africa. This call was due to the ongoing extensive hunting of wildlife, particularly elephants, and the destruction of their habitats. Hunting was mainly for trophies, while habitat destruction was to create space for settlement and agricultural expansion. The construction of the Uganda railway line (1896-1901), which was an expensive investment, opened up the interior and, in order to recover the cost, the British administration had to encourage income-generating activities, including agriculture, tourism and trophy hunting. Indeed, the Uganda railway made the first ever East Africa tourism promotion in 1900 through posters, which appeared in London newspapers and clubs.

In order to reduce the extensive loss of wildlife in 1897, Sir John Kirk proposed a large, defined wildlife sanctuary in British East Africa (Kenya), sufficient to encompass a number of habitats. This led to the establishment of the 33,670 km^2 Southern game reserve in 1899 and 35,742 km^2 Northern game reserve in 1900. Both reserves were intended to protect wildlife and the rights of indigenous people who, the colonial government thought, would preserve wild animals. Scenery was no reason for the establishment of the reserves, which were covered over extensive areas by monotonous bush, much of it unexploited, but considered as hunting grounds for the rich sportsmen from the Western world and Asia. This introduced a

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African coast and other parts of the world. Other historical information on trade in wildlife products includes Ogwang' Geoffrey (1997), Marekia (1991) and Oglethorpe (1994).

[12] One frasila = 35 pounds or 15.9 kg, therefore 400 frasilas = 6,360 kg.

Box 7.3
Wildlife conservation and management: Major events during the colonial period

Dates	Events
1888-89	Kenya became a Protectorate of Britain
1897	The Foreign Secretary called for an international agreement on ivory trading and wildlife protection in Africa.
1899	Queen's regulations under the African Order in the Council refused commercial animal trade (excepting crocodile) explicitly to protect the interests of indigenous tribes and wildlife in East Africa.
1900	The Foreign Secretary's plea of 3 years earlier (1897) resulted in the first ever International Convention on wildlife held at Lancaster House in London.
1901	The first game ranger was employed in Kenya and instructed to protect wildlife, especially in the reserves.
1903-06	The Society for the Preservation of the Fauna of the Empire was founded in Britain.
1905	A delegation from the Society met with the Secretary of the Colonies, Alfred Lyttelton, and drew his attention to the deterioration of the wildlife situation in East Africa.
1906-08	The Game Department was set up to help manage wildlife, with the main aim of preserving game from extinction, particularly the kudu, rhino, sable antelope, buffalo and eland, which had decreased steadily due to colonial settlement in wildlife areas.
1914-18	The two World Wars resulted in a significant killing of wildlife to provide cheap protein for soldiers and prisoners. After
1939-45	World War II, there was an expansion of agriculture in Kenya.
1930	The Society for the Preservation of the Fauna of the Empire, with the approval of the Secretary of State for the Colonies, sent Major R.W.G. Hangston to Kenya to investigate the game situation and make recommendations for the future wildlife conservation.
1933	The International Convention held in London laid down principles upon which national parks and other sanctuaries were to be established. The convention defined a national park as (a) a place under public control, the boundaries of which shall not be altered or any portion be capable of alienation except by competent legislative authority; (b) set aside for the propagation, protection and preservation of wild animal life and wild vegetation and for the preservation of objects of aesthetic, geological, pre-historic, historic, archaeological or other scientific interest for the benefit, advantage and enjoyment of the general public; and (c) in which hunting, killing or capturing of fauna and destruction or collection of flora is prohibited except by or under direction and control of the park authority. It is on this basis that wildlife and forest legislation was developed.
1935	The British government ratified the convention and automatically bound Kenya to these principles. However, in Kenya, the government resisted the establishment of national parks, as land was needed for agriculture, mining and settling growing populations of both the settlers and native population.
1934	The East Africa professional Hunters Association was formed.
1938	The government appointed a Game Policy Committee, which planned the designation of national parks, their management, policy and legislation.
1945	Kenya's colonial legislature adopted the Royal National Park of Kenya Ordinance No. 9, which set the national park policy in the colony and formed a Board of Trustees, which operated largely independently of the government in administering land set aside as national parks.
1946	Nairobi National Park was established.
1948	Tsavo National Park was established.
1949	Mt. Kenya National Park was established and others followed later.
1955	The Kenya Wildlife Society was established. Its predecessor was the Society for the Preservation of the Fauna of the Empire.
1960	The International Union for the Conservation of Nature (IUCN) launched its African Special Project. Its major achievement was in September 1961 through the Arusha Conference (a symposium on the conservation of natural resources in modern African states), which was aimed at showing the African leaders that nature conservation had economic potential in the form of tourism. The then Prime Minister of Tanganyika, Julius K. Nyerere, signed the Arusha Manifesto, which declared that Africans were concerned about protecting wild creatures and wild places for aesthetic as well as economic reasons.
Sept.	The then Prime Minister of Kenya, Jomo Kenyatta called other nations and nature lovers throughout the world to help the
1963	newly independent governments to honour their pledge to conserve wildlife and wilderness.
1964	The Royal National Park of Kenya Ordinance No. 9 was amended in 1964 and replaced by the National Park of Kenya Act of 1976, which was in turn replaced in 1979 by the Wildlife Conservation and Management Act, which established the Wildlife Conservation and Management Department (WCMD) under the Ministry of Tourism and Wildlife. The Kenya Wildlife Service (KWS), a parastatal body created in 1989, replaced the WCMD.
1970s	Poaching was getting out of control and, even after the creation of WCMD, poaching continued to such an extent that, by 1989, the elephant population had dropped by around 85% and the rhino population by 97%.

Sources: Author's compilation from: Marekia (1991: 155-176); KWS (1997) and Western (undated).

racist element into conservation. In the government's eyes, the only legitimate hunters were the white Europeans and the tribal hunters were "poachers" (Leakey and Morell 2001, p147). In the efforts to control hunting, the Queen's regulations under the African Order in Council explicitly prohibited the commercial animal trade (excepting crocodile) in 1899 to protect the interests of indigenous tribes and wildlife in East Africa. In the following year, 1900, the Foreign Secretary's plea of three years earlier (1897) resulted in the first ever International Convention on wildlife, which was held at Lancaster House in London. Here, eight European nations with territories or protectorates in Africa discussed how to prevent habitat destruction and wildlife extermination, which had seriously affected wild animals in southern Africa and other parts of the globe. The participating nations ratified various articles covering trade, hunting and wildlife reserves.

In the 1903-1906 period, the Society for the Preservation of Fauna of the Empire, which had just been formed in Britain, urged the government to establish 'protectable' reserves covering the migratory routes of wildlife, urging that action should be taken before settlement made the proposition difficult and expensive. It also indicated that wildlife should be protected for posterity and for its great economic potential for East Africa. Following the lobbying by the Society for the Preservation of the Fauna of the Empire to redouble conservation efforts, the Secretary of state in Britain replied:

> We owe the reservation of these interesting and valuable and sometimes disappearing types of animal life as a debt to nature and to the world… We are the trustees for the prosperity of the natural content of the empire… The reserves ought to exist not for the gratification of the sportsmen, but for the preservation of interesting types of animal life. (KWS 1997: 13)

In the same period (1906), a Game Department was established in Kenya, charged with enforcing the hunting laws and protecting the reserves. Captain Archie Ritchie was appointed the first Game Warden of Kenya in 1923, a post he held up to 1948. His evidence to the Kenya Land Commission of 1933 paved the way for the eventual creation of national parks. Indeed, he played a major role in the formation of Kenya's national parks and believed that 'national parks were the only way of saving Kenya's wildlife'. Indeed, without their formation, wildlife by now would have been exterminated.

In the late 19th century, firearms became readily available to indigenous people, who soon commercialised their traditional economy. In the first six months of 1888, more than 37,000 firearms and 1 million rounds of ammunition were imported through Zanzibar (Ogwang 1997). Meanwhile, European explorers and settlers were trickling in, the majority of them arriving at the turn of the century (1900s). They began slaughtering wildlife for subsistence, sports and trophies, an action familiar from North America and South Africa by that time (KWS 1997). They argued that wildlife was vermin that destroyed crops and livestock and that the reserves should be dismantled in favour of settlement and agriculture. This added to the impact on wildlife from commercial hunting. From early in the 20th century, wildlife habitat was progressively lost through European settlement and farming. The habitat lost included large areas of forest in the higher agricultural potential areas. Conflicts between wild animals and farmers lead to further widespread reduction in animal numbers. This was one of the main concerns of the Game Department by the 1930s and continues to be so even today.

Nonetheless, the limited agricultural potential of the reserve land within the extensive savannah, which was inhospitable due to lack of water, aridity and sleeping sickness, coupled with the Game Department's efforts, reduced the rate at which wild animals were being exterminated. Concurrently, the British Government honoured to some degree many of the tribal reserves and thus prevented a large-scale annexation by the white settlers who had become a serious threat to wildlife. However, the slaughter continued on the confines of the arable highlands and the coastal belt of East Africa.

Settlers, alarmed by the mounting threat to wildlife through films, books and reports by returning tourists and adventurers such as F.C. Selous[13] in 1930, sought to establish national parks and reserves free of all human settlement. The move was halted temporarily during the Second World War, but succeeded immediately afterwards, when Nairobi National Park was established in 1946.

However, during the Second World War, large numbers of animals had been shot in the Mt. Kenya and Aberdares areas to feed troops and prisoners of war, and forests were felled to support the war effort, thus destroying wildlife habitat. Immediately after the war, wildlife destruction continued, as a concerted drive was made to develop Kenya's agricultural potential. Indeed, human population growth and the concomitant expansion of agricultural activities, which spilled over to the low agricultural potential areas initially left for wildlife and pastoralism, are presently the most critical threats to wildlife conservation in Kenya.

The Game Department

The Game Department was established in 1906 to manage wildlife, with the main aim of preserving game from extinction. Wildlife conservation focussed mainly on the kudu, rhino, sable antelope, buffalo and eland, which had decreased steadily, due to white settlement in the wildlife areas. The Game Department was also in charge of clearing animals from large tracts of land to permit settlement and agriculture, issuing hunting licences, collecting revenues and enforcing game laws. However, it did not fare well, because of limited staff. The game laws also did not perform well, as they paved the way for the sporting safari, in which hunting was for pleasure rather than profit. The traditional indigenous hunters were also difficult to control, as they did not see the point of getting a license to do what they had been doing since time immemorial.[14]

In 1938, a Game Policy Committee was formed to consider and make recommendations for wildlife institutions and the formation, location, extent, constitution, control and management of national game parks. This was the first attempt towards the creation of national parks since 1933, when an International Convention on Wildlife was held in London. The Game Department remained within the government even after the formation of a semi-autonomous Kenya National

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[13] F. C. Selous was one of the tourist adventurers whose writings fired the enthusiasm of sportsmen who hunted Africa's big game. A German sniper killed him during the East Africa campaign near the Rufiji River in 1917. Selous National Park in Tanzania is named after him.

[14] The British Colonial Office identified the most important enemies of wildlife as: (i) the skin hunters who killed game solely for the skin, leaving the skinned carcass for the vultures; (ii) the native population who cannot be made to understand the advantage of a closed hunting season; and (iii) the wanton sportsman who shot females and killed large numbers of males on the chance of securing a single good specimen head. (Kenya Government Report of 1965; Game Policy Committee Sessional Paper No. 7, Nairobi Government Printers).

Parks and Board of Trustees and was held responsible for control of hunting, for all wildlife licensing and for dealing with all wildlife problems outside the Parks. The Forest Department for a while had its own Game Control Unit, before this function was taken over by the Game Department.

The East Africa Professional Hunters Association

The East Africa Professional Hunters Association (EAPHA), a non-governmental organisation, was formed in 1934, following the introduction by the Game Department of a licensing system for professional hunters. In order to ensure professionalism, the association also made its rules. The strict rules imposed a number of obligations upon licensed hunters to such an extent that an American author, Robert Ruark, described the association as 'the most exclusive club in the world' (KWS 1997). Big game hunting was a sport and the rules were observed through the association. The trophy was important and equally how it was obtained. Later, however, the lust to kill overcame ethical considerations and rules were ignored for the sake of obtaining a trophy.

The National Parks and Board of Trustees

In 1945, a Board of Trustees was established to administer land set aside as national parks, operating largely autonomously of the government. The first national park (Nairobi) was established in 1946 and others followed in later years. National parks had stronger legal protection than the reserves. Their overriding function was wildlife conservation, whereas at that time in national reserves, unlike today, the preservation of wildlife was possible only as long as it did not interfere with the needs and rights of the local people.

The Board of Trustees was given responsibility for protecting wild animals in national reserves, but it ran into conflict with the Provincial Administration, which was responsible for human interests in the reserves. A Game Policy Committee investigated the issue and proposed the abolition of national reserves. The main reason was that the local people resented the fact that the land was vested in a public body. Finally, the national reserves were abolished on 1 January 1961. Some became controlled areas for hunting on a quota basis, while the District Councils, with the Board acting in an advisory capacity, gazetted others, such as Amboseli and Maasai Mara, as reserves.

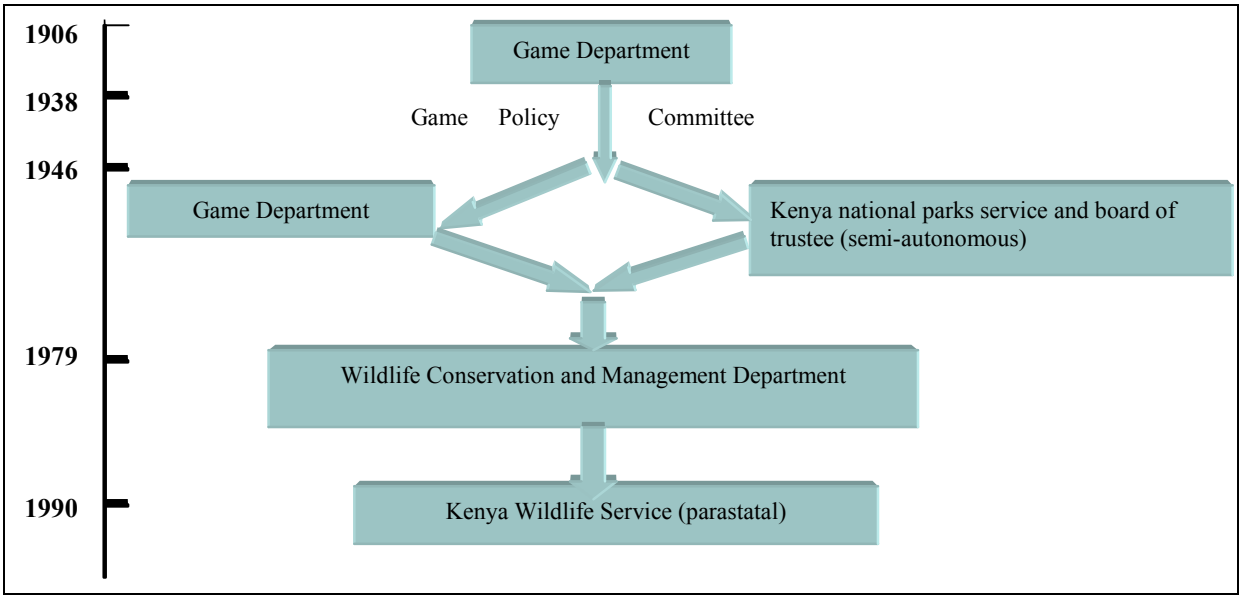
The post-colonial era (1963-2002)

At Kenya's independence in 1963, there were seven national parks and reserves. The National Park Service under supervision of a Board of Trustees administered the national parks. The Board also gave backing to the county council reserves. The Game Department was responsible for giving technical advice in matters dealing with wildlife. Despite the presence of these institutions, there was massive killing of wildlife, particularly elephants, in the early 1970s.[15] The two

[15] Mervyn Cowie, an accountant by training, was the founder and first director of National Parks in Kenya. He is regarded as the father of National Parks in Kenya. He had interest in and knowledge of wildlife in Kenya. Before he became the director of Kenya National Parks, he played a critical role in the creation of national parks. In the late 1930s, he wrote an offensive letter to the East Africa Standard advocating the destruction of all Kenya's wildlife, a letter that provoked the creation of the 1938 Game Policy Committee, which set the pattern for park management in East Africa. Indeed, spearheaded by Cowie, supported by Chief Game Warden, Archie Ritchie, a campaign to establish national parks in Kenya got underway. Perez Olindo succeeded Cowie as the director in 1966.

bodies, Kenya National Parks Service and Game Department, worked together to save Kenya's wildlife. However, there was debate on the merits of a unified wildlife service, which had simmered for several years. The 1953 Bukavu Conference had recommended that, in each territory, the conservation and control of animals should be vested in a single authority adequately staffed and suitably equipped. Seventeen years later, in 1971, the proposal to merge the two bodies was floated, the principal justification being central control of funding. It was argued that donors would hold back the funds and parks would stagnate. The matter was resolved when the government published Sessional Paper No. 3 of 1975 (RoK 1975), paving the way for a unified wildlife service. Subsequently, in 1976, the Wildlife Conservation and Management Act was passed, while the Wildlife Protection Act and National Parks of Kenya Act were repealed. The Game Department and the Kenya National Parks were merged to form the Wildlife Conservation and Management Department (WCMD) under the Ministry of Tourism and Wildlife. Later, in 1989, a proposal to establish a parastatal body was made. In 1990, the WCMD was absorbed in the new semi-autonomous Kenya Wildlife Service.[16]

Figure 7.2
Chronogram showing wildlife conservation and management, institutional evolution



[16] The national park system was set up by ordinance No. 9 of 1946, amended in 1964 and replaced by the National Park of Kenya Act (Cap. 377 of the Laws of Kenya). Game reserves (national reserves), local sanctuaries and controlled areas were provided for under the Wild Animal Protection Act (Cap. 376). Through Sessional Paper No. 3 of 1975, the Wildlife Protection Act and National Parks of Kenya Act were repealed, merging the Game Department and the National Park Service. In 1976, the Wildlife Conservation and Management Act was passed and created the Wildlife Conservation and Management Department (WCMD) under the Ministry of Tourism and Wildlife. Until late 1976, National Parks were administered by the National Park Service under the supervision of a Board of Trustees. For advice and assistance in dealing with wildlife issues, they depended on the Game Department.

The Wildlife Conservation and Management Department

By the time the Wildlife Conservation and Management Department (WCMD) was formed, poaching was getting out of hand. The WCMD, with its clear mandate to control poaching and trophy dealing, cancelled all trophy and curio dealer licences. By legislation supplement No. 25 (Legal Notice No. 120), known as the 'Wildlife Conservation and Management Prohibition on Hunting of Game Animal Regulation of 1977', all hunting in Kenya was banned. Unfortunately, as a government department it was given inadequate resources by the Treasury to undertake its functions properly. A decade later, wildlife management suffered as poaching continued unabated and there was a serious infrastructure decline in conservation areas. The Department was understaffed, salaries were low and the staff members were inactive and demoralised. Opportunities for corruption were rife, because of high black market prices for ivory and other trophies, and difficulties in accounting for park gate revenues. Wild animal populations in many parks and reserves fell drastically through poaching. In the 15 years of WCMD's existence, the elephant population fell by around 85% and the rhino population by 97%. On private land, wildlife generally fared better, particularly on the ranches in the highlands. However, in other circumstances, wildlife was less well tolerated because of the hunting ban, as landowners had to bear the cost of an expanding wildlife population in certain areas competing for grazing with their livestock and damaging crops as well as causing other damage.

The Kenya Wildlife Service

In 1987, the Government became seriously concerned about the future of the tourist industry and the wildlife heritage and started a series of changes which led to the establishment of the Kenya Wildlife Service (KWS) as a parastatal organisation in 1990. Up to the present time, although KWS has been under different directorships and has had management upheavals, as a parastatal it has made crucial decisions, which had been made until 1989 through the bureaucratic machinery of the Ministry of Tourism and Wildlife. It has also been able to borrow funds from donors with government guarantees for its own projects without having to go through the Treasury. This has given it a wider range of autonomy and flexibility in designing and implementing its programmes. Its principal goals are (KWS 1990):

- to conserve Kenya's natural environments and their fauna and flora as a world heritage and for the benefit of present and future generations;
- to use the wildlife resources of Kenya sustainably for the nation's economic development and for the benefit of people living in wildlife areas; and
- to protect people and property from injury or damage caused by wildlife

The strategy by which this was to be achieved includes sharing of tourism revenues with local communities inconvenienced by the presence of wild animals. However, KWS largely operates as a commercial entity, and tourism is the major source of revenue.[17] Within five

[17] Robert Shaw's (currently director of the Institute of Economic Affairs in Nairobi) critique of KWS' management hinged on his view of running KWS like a business in order to generate income. Thus he advocated for 'park only' policies. He dismissed community-based conservation, which agitated its proponents. To David Western, by then the incumbent KWS director, it appeared to be a direct personal attack, as described by Dr Imre Loefler, who argued that public debate in Kenya is always highly personalised without reference to structures, institutions and issues. Dr Western regarded Robert Shaw as a

years, it was expected to be operating independently of the Treasury and donor funds. Donor support was being used initially to rebuild infrastructure and re-equip the organisation, and to support expansion into new areas and projects, particularly community-based conservation.

Wildlife management policy

Government policy towards wildlife was first clearly stated in the Sessional Paper No. 10 of 1965 on 'African Socialism and its Application to Planning in Kenya'. The paper contends that approaches tending to harm rather than to conserve the physical environment must be curbed through education and legislation. It recognised the need to preserve and conserve natural resources for future generations. Although the prevailing trend in wildlife policies was to focus on tourism, human aspects in wildlife conservation have become increasingly recognised (UNEP 1988). One can witness a shift from the traditional wildlife management paradigm of preservation to modern conservation approaches, which are based on community involvement. This trend in policy alignment has not been reflected in the legislation and so lacks appropriate legal support. This constitutes the main constraint on wildlife management. It may also be an advantage, as it gives the KWS and incumbent directors leeway to pursue their own views. However, in the context of entitlement rights, it is more of a disadvantage, as it limits the sense of security and continuity when the incumbent director and the staff are changed.[18] This has been witnessed in the last thirteen years, during which the directors have been changed seven times.

Forest biodiversity conservation

Forest resources

Forests in Kenya comprise industrial plantations covering about 160,000 ha and indigenous forests covering about 1.24 million ha, accounting for about 2.7% of the total land area. Forests rank high as one of the country's national assets (Wass 1995). Despite the relatively small size of the forest reserves, they are important ecological resources, supporting much of the country's biodiversity. It is estimated that 70% of the plant species, 40% of the animal species, 30% of the birds and 35% of the butterfly species are found in forest areas. The forests also harbour species that are considered as threatened. About 60% of the threatened woody plants, 70% of the mammals and 51% of the threatened birds live in forests. There are also human forest dwellers comprising, more than 10,000 households, and 530,000 forest adjacent households (RoK/MENR 1994a). All these households, particularly the forest dwellers, have by and large depended on forest resources for their livelihoods for a long time. The forests also perform various ecological functions, such as regulating stream flows, allowing groundwater recharge, nutrient cycling and energy flows. They possess and harbour biological diversity, form water catchments, preserve soils and are a major habitat for wild animals. In terms of social economics, the forest supports a variety of industries and local communities with various wood and non-wood resources. These include building materials

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political activist and a friend of and spokesperson for the previous director, Richard Leakey, 'himself a 'park only' advocate.' (Shaw 1998; Western 1998; Loefler 1998).

[18] Under the Kenyan constitution, the KWS directors are appointees of the President.

and wood fuel. Other traditional forest resources include medicinal herbs, foods (fruits, nuts, roots and tubers, honey, game meat and leaves), oils, tannin, resin, and plant fibres for ropes and handicrafts. There are other values of the forest, which can be described as intangible and include cultural/ceremonial heritage, aesthetic values, tourism and recreational values, conservation values and environmental services. Various uses of forest resources in Kenya have been documented by such authors as Mwangombe and Mwanyumba (1999), Chikami (1998), Arnold (1997) and FAO (1997).

The forestry sector contributes significantly to the national economy in terms of employment, industrial output, food security and fuel wood energy. Indirectly, forest lands constitute catchment areas for several rivers, which are important for hydropower generation and many other values. Industrially, 20% of the large-scale industrial firms in Kenya are wood, furniture or paper-related. These firms employ more than 12% of the labour force and produce more than 12% of the gross product of all industrial firms in Kenya. Over 71% of the energy annually used in Kenyan households is from fuel wood. About 95% of rural energy demand is met by firewood. In terms of revenue, the forest sector has the potential to collect over Ksh. 1.2 billion annually in the form of royalties compared to the Ksh. 200 million collected (RoK/MENR 1994a: 13-33).

The history of forest biodiversity conservation

The precolonial era

Little historical information exists about the original distribution of forest cover in Kenya, but it is likely that it has been affected by human activity over several millennia. Early hunter-gatherer groups probably had very little impact on the forest cover. Pastoral groups, known to have lived in northern Kenya around 4,000 years ago and who reached the central highlands about 1,000 years later may have undertaken some cultivation of indigenous plants, possibly by clearing patches of forest on a small scale. Subsequent movements of people resulted in further clearance of forest areas over the centuries for more serious arable production. On parts of the coast, Arabs exploited mangroves and other coastal forests on a large scale over the centuries. Indeed, the earliest commercial use of timber was along the coast, where the Arab shipbuilding industry made use of a variety of hardwoods, including mangrove forest species. The latter were used for house building and tannin in the coastal areas, while some were also exported (IUCN 1995).

The colonial era

The colonial government took over control of large territories inhabited by different ethnic groups and introduced the colonial resource management system. Several authors, including McCraken (1987), Little and Brokensha (1987), Anderson and Grove (1987), Okoth-Ogendo (1991), have discussed this system. Its most notable feature was its centralised nature in a context of considerably varied ecological characteristics, ethnically diverse inhabitants and very different livelihoods. Under this system, local communities were alienated from their practices by being detached from their forest resources, which became the property of the colonial government. Colonial European writers, such as Blixen (1937), quoted by Anderson

and Grove (1987: 193-209), romanticised the 'Eden' for Europeans, portraying natural resource management without the local communities' dimension (Anderson and Grove 1987: 193-209).

The first major exploitation of inland forest was for the construction of the railway from Mombasa to Kampala and the provision of fuel for wood-burning engines. The use of wood as fuel for railways continued until the early 1950s and, indeed, cleared a lot of forest. The first sawmill was operating in a government forest in 1903. The number of sawmills increased as the demand for construction timber increased in line with settlement. Initially, much of the timber came from natural forest areas that had been granted to private settlers, but the first systematic felling began in 1910 in a government forest block of 250 acres (100 ha) under a 20-year cycle. It was soon realised that the cycle was inadequate for natural regeneration to occur in indigenous forests or for plantation of indigenous species to reach maturity, thus exotic plantations were established. Save for the Arabs in the coastal area, the export of timber for construction and furniture began in the 1920s. From 1922, cedar (*Juniperus procera*) was exported for the production of pencils, which continued until the 1950s (IUCN 1995).

Plantations were established by 1902, mainly because of overuse and degradation of natural forest. The first plantation scheme was established using exotic hardwoods, mainly to provide fuel wood for steam locomotives. This followed the first ever forest legislation of 1902. However, the programme was abandoned in 1912 and restarted in 1927. The Second World War created a major demand for timber, both locally and for shipment to the Middle East. This was supplied from the montane conifer forest. The more accessible areas were so heavily logged that they were later converted to forest plantations, mostly of exotic soft woods (IUCN 1995). The plantation programme was expanded in the 1950s to include the planting of exotic pines in natural glades within the closed-canopy indigenous forests and on grassland areas at the margins of montane forests.

In terms of policies and legislation, the first forest legislation was written to provide protection for the mangroves and a strip of land along the railway line, which had already been overexploited to provide wood for railway sleepers and steam engines. The East Africa Forest Regulations (1902) were published after the appointment of the first Conservator of Forest. The first forest reserve in Kenya was established at this time and, by 1908, the current major forest blocks had mostly been declared forest areas with a government land status. They were generally demarcated using natural features and included significant areas of land with no close-canopy forest cover. Subsequently, a distinction was made between forest gazetted as government forest and that declared as trust forest. Trust forests were declared in those areas where it was established that local communities were in effective occupation and making regular use of the area.[19] Areas with sparse population and only infrequent land use were gazetted as Forest Reserves under government land (Ogolla and Mugabe 1996). Surveying, demarcation and gazetting continued steadily over the succeeding decades until the Second World War, mainly in potentially productive areas. In 1943, the largest annual

[19] The colonial government delineated boundaries of land ownership and land tenure systems across the colony on the basis the findings of the Kenya Land Commission report (1934). It determined which areas clearly belonged to particular tribes or groups from historical precedent, based on use and residence (Kenya Land Commission 1932-1933, Report and evidence, Government Printers, 1933, KNA).

addition was made with the gazetting of Mount Kenya and the Aberdare forests. The few remaining large areas were added in the late 1950s and forests gazetted since then have all been relatively small.

The Forest Ordinance was revised in 1941 to provide for the creation of nature reserves within forest reserves for total protection. A Forestry Advisory Committee was also established to advise the Governor on forestry matters, particularly to ensure that forest policies were well adjusted to meet the country's timber requirements. Following its recommendations, certain forest reserves within high agricultural potential areas were de-gazetted. This was in order to make available more land for farming in specific areas.

The first formal forest policy was published in 1957. It covered further reservation, protection of the forest estate and sustainable exploitation of forest resources. Afforestation and conservation of the forest in 'African areas' were to be encouraged, as was proper management of privately owned forest. The value of forests for public amenity and wildlife purposes was also recognised. The Forest Act was enacted in 1962 to provide a legal framework for the implementation of the policy.

The post-colonial era

Independent African governments inherited the colonial forest management regime. However, this has changed over the years and socio-economic interests and political realities between state institutions and local people are now being recognised, following the occurrence of forest management conflicts (Beinart 1987; KWS 1990; RoK/MENR 1994a). In the post-colonial period, the forest policy was first revised in 1968 with few modifications. Its focus was on catchment protection and timber production, with strong government control over the sector. Further reservations were recommended. Since the publication of these policies, most forests on private land have been cleared for settlement and agricultural land use. The remaining indigenous forests within protected reserves have also been logged, greatly reducing the standing timber volume of commercial species. Charcoal burning has also caused severe damage. Increasing human population around many forests has resulted in localised over-use of other forest products for sustenance and commercial purposes. Grazing in the forest, originally allowed because of its reduced fire risk, ran out of control, causing damage to young plantations and, in some cases, adversely affecting regeneration in natural forests. Forests on trust lands were also heavily exploited, with minimal management by county councils.

In the mid 1980s, the situation reached a crisis and all logging, charcoal burning and grazing activities were banned in gazetted natural forests, with the exception of some logging in the Coast Province. Despite the ban, these activities have continued illegally in many forests, causing severe degradation. A proportion of gazetted forest continues to be lost through clear-felling, mainly for settlement and agriculture (IUCN 1995). A few forest areas, particularly those under the local government, have also been gazetted. The most recent additions are the Taita Hill forests in 1991. The government proposes to gazette a number of additional areas, including the Nguruman escarpment, the Maasai Mau forest and Tana River blocks, although not all of these are closed-canopy forests (Martin 1995).

Table 7.5
Proposed forest excision areas against total gazetted forest areas by 2000

Forested area	Proposed clear-felling (ha)	Gazetted forest area (year)	Percentage of area being deforested
Eastern Mau Forest	35,301.0	64,971 (1999)	54.3
South Western Mau Forest	22,797.2	83,395 (1995)	27.3
Western Mau Forest	1,035.7	22,885.3 (1994)	4.5
Nakuru Forest	270.5	618.9 (1994)	43.7
Nabkoi Forest	74.1	3,014.5 (1994)	2.5
Mt. Kenya Forest	1,825.2	200,870.9 (1994)	1.0
Marmanet Forest	2,837.4	23,327.6 (1994)	12.2
North Tinderest Forest	788.3	26,097 (1995)	3.0
Mt. Londiani Forest	124.9	29,682.4 (1994)	0.4
South Nandi Forest	34.5	19,502.2 (1994)	0.2
Molo Forest	901.6	901.6	100.0
Kapsaret Forest	1,194.2	1,194.2	100.0
Total	67,184.6	476,460.6	14.0

Source: The notice to 'degazette' these forests was issued in February 2001 in the Kenya Gazette, Vol. CIII-No.12, Legal Notice 29 and the Gazette Notice No. 889-908.

For the plantations forests in the early 1960s, the government of Kenya targeted planting 160,000 ha and sought the World Bank's financial support for long-term expansion. The plantation area gradually increased over the following years under the '*shamba*' system. The latter was an arrangement under which an area demarcated for plantation was allocated to farmers, who were permitted to plant food crops along with tree seedlings. This arrangement was made through a contract, which allowed the farmers to live within the forest and plant food crops until the crops were eventually shaded out by the young trees, usually after 3-4 years. The advantage of this system was that the landless poor gained access to productive land for a short period and the Forestry Department established forest plantations successfully at a minimum cost. However, the *shamba* system failed, as it was not a long-term solution for the landless peasant farmers who remained in the forest even after expiry of contracts. This resulted in a serious squatter problem, leading to the system's discontinuation in 1987. At present, there are still an unknown number of squatters in forest reserves as a living legacy of the *shamba* system. Currently, both natural and plantation forests are threatened by official and unofficial clear-felling and overuse without replacement, as human population continues to expand.

Forest management policy

The current forestry management regime began at the end of the 19th century, when the country pursued the policy of reserving forest areas for protection purposes, as well as establishing high yielding industrial plantations. Management activities were supported by organised forestry research programmes that started in 1934 with the primary objective of ensuring sustainable forest exploitation and the maintenance of environmental stability. Until early 1950, each forest reserve had an approved annual management plan. The Sessional Paper No. 1 of 1968 set out the Forest Policy for Kenya (RoK/MENR 1994a). The policy aims to demarcate and increase the total forested areas as much as possible. The policy expresses the intention that all major forests should be managed by the central government,

because a forest in one district or province may affect water and/or timber supplies in another. However, local authorities may establish forests for purely local purposes. Thus, the forest sector has been characterised by over-centralised decision-making management. This has led to ineffective management, which is best illustrated by inadequate industrial plantation development and indigenous forest degradation.

Not much has been achieved by the Forest Department in managing forests on private land. However, there have been some efforts to encourage people to plant trees on their farms, particularly under farm forestry. In the 1970s, more efforts were directed to afforestation through the Rural Afforestation Extension Scheme in 1971 and through the NGOs particularly the Greenbelt Movement in 1977. In the 1980s, the year 1985 was the declared a 'Year of the Tree' when campaign by the government to plant more trees intensified.

Over the past decade, forest management in Kenya has attempted to adapt to the current conservation paradigm by using terms such as 'community forestry', 'participatory forestry', 'joint forestry management' and 'collaborative forestry', denoting a kind of management that involves various stakeholders on the basis of sharing of rights, responsibilities, benefits and obligations between the people and the state. Nevertheless, the government manages most of the forests through the Forest Department and in some cases the Kenya Wildlife Service. Private individuals and companies also manage forests under their jurisdiction. However, in some cases, private institutions are involved in the management of government forest reserves. An example is the involvement of Lewa Downs Wildlife Conservancy in the management of Ngare Ndare forest, a case that has triggered off resentments from local communities.[20] There are attempts to manage forests jointly, as in the case of Arabuko Sokoke Forest, which is collaboratively managed by the Forest Department, KWS, the Kenya Forestry Research Institute (KEFRI) and the National Museums of Kenya (NMK). There have also been attempts by communities to manage forests, for example, in Loita Forest in Narok District. The new Forest Bill of 2000, if enacted, will be a milestone in the evolution of forest management in Kenya. Most importantly, it will facilitate and guide the entire rage of actions to harmonise all forest-related issues and actors. Chapter 10 highlights what the forest Bill proposes on participation of actors in forest management.

Conclusion

Traditional natural resource management systems and their knowledge and innovations are recognised as crucial to biodiversity conservation. The community-based wildlife and forest conservation initiatives have taken the place of the original, traditionally ethnic-based, resource management systems. Most of these initiatives are crisis-driven and have been initiated by stakeholders, such as NGOs, with government agencies playing the management role. There are several international and local NGOs which are directly or indirectly involved in environmental conservation and the sustainable use of natural resources. Their levels of

[20] The involvement of Lewa Downs Wildlife Conservancy in the management of Ngare Ndare forest (5,556 ha) on the main Mt. Kenya Forest has caused a lot of resentment among the local communities. The argument is that the private institution has hired its own rangers to man the forest and has therefore annexed the forest as private property at the expense of the local people.

operation vary, ranging from advocacy to research, sourcing funding and implementing conservation projects. The government has several agencies, ministries, departments and institutions dealing with biodiversity in general. To coordinate their activities, the Environment Management and Coordination Act was enacted in the year 2000. It is expected to harmonise various laws and policies dealing with the environment, in general, and wildlife and forest, in particular.

The basis of the failure to ensure sustainable use of wildlife and forest resources is the failure of the highly centralised management regime. This is exemplified through conflicts rooted in stakeholders' dynamic entitlement rights and interests over ownership, access and interventions. Tenure arrangements, particularly for land (hence wildlife and trees) are a handicap to community-based management. In particular, the wildlife and forest management regimes, like other sectors, are exclusionary, not only to the local communities, but also to other stakeholders, including various governmental sectors and non-governmental organisations. This is rooted in the historical development of the respective legal, policy and institutional arrangements from colonial times to contemporary Kenya. However, there is a clear trend towards more integrated wildlife and forest management, with the local communities playing a key role. This is exemplified by the initiatives of community-based wildlife and forest conservation.

Part Three

Wildlife and forest biodiversity conservation: Stakeholders and conflicts

This part comprises Chapters 8, 9 and 10. It endeavours to identify the stakeholders in local wildlife and forest biodiversity conservation on the basis of theoretical insights and empirical data. Chapter 8 provides a checklist of stakeholders which is used to identify the stakeholders in biodiversity conservation and management in the Taita Taveta District. We argue that such identification is of the utmost importance for successful wildlife and forest biodiversity management. In Chapters 9 and 10 we discuss the nature and extent of the involvement of local communities in, and interaction with, wildlife and forest biodiversity conservation in Taita. It is noted that the interactions of local communities' with wildlife and forest biodiversity are not favourable, as they are clouded by conflicts. These conflicts are viewed in two perspectives. Firstly, there are the direct conflicts between the local communities living close to conservation areas and wild animals, commonly regarded as 'human-wildlife conflicts'. These conflicts are viewed in the context of adverse human impacts on wildlife and forest resources and *vice versa*. Adverse human impacts on wildlife and forest resources refer to how the socio-economic activities impinge on wildlife and forest conservation. Conversely, the negative impacts of wildlife on humans include the losses incurred by the local communities from wildlife. These negative impacts of encounters between the local communities and wildlife are discussed in Chapter 9, where it once more becomes clear that local communities are stakeholders in their interactions with both wildlife and forest biodiversity.

The second category of conflicts relates to conservation and management programmes and projects in which local communities and other stakeholders have conflicts over entitlement rights as a result of the limitations set by the conservation activities. We discuss this second category of conflicts in Chapter 10. It highlights the efforts of community-based conservation. The limitations of these efforts, among other management-related conflicts, constitute the main body of this chapter. It is noted that management-related conflicts are hinged on entitlement rights. In particular, different stakeholders, particularly NGOs and the relevant mandated government institutions, have initiated most of the community-based activities.

Conflicts of interests have been experienced as a result of lack of coordination and clear understanding of the heterogeneity of local communities and other stakeholders.

8

Stakeholders in Taita's wildlife and forest biodiversity conservation

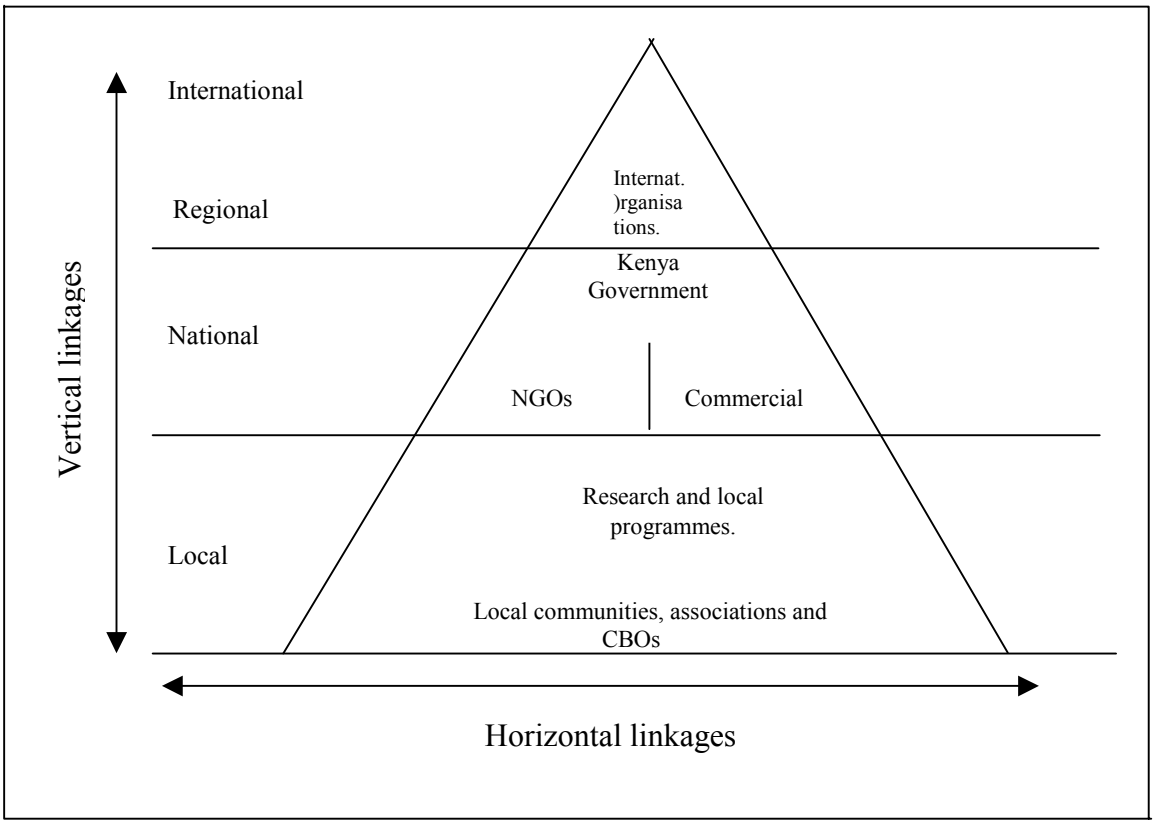
In this chapter, we discuss the stakeholders in wildlife and forest biodiversity conservation in Taita. We start by providing a general view of stakeholder identification and continue by describing which stakeholders are involved in biodiversity conservation in Taita. These include government institutions, local governance structures, non-governmental organisations, international organisations and other institutions, along with local communities and the private sector. We then narrow down to identify the stakeholders in wildlife and forest biodiversity conservation in Taita and their respective roles, responsibilities, interests, mandate and rights.

Stakeholder definition

It is highly important to analyse who are the stakeholders in wildlife and forest biodiversity conservation and what are their interests, roles and interactions, because contemporary biodiversity managers live and work in environments that are continually being reshaped by social, cultural, and political forces (Messmer 2000: 100). Consequently, the success of programmes designed to the conservation of wildlife and biodiversity depends on their ability to resolve human-wildlife and other biodiversity-related conflicts in these dynamic environments. This requires that decision-makers and managers should be able to recognise, embrace and incorporate differing stakeholder interests, values, attitudes and beliefs in the policy-making process.

Who is a stakeholder in biodiversity conservation and management is often controversial, especially if there are no clear entitlement rights or they are in conflict. Since the conservation of biodiversity cannot be separated from economic development – a reality that has led to the concept of sustainable development (UN 2001) – biodiversity stakeholders also include development agencies at the local, national and international levels (*cf.* Figure 8.1).

Figure 8.1
General view of stakeholders in biodiversity issues in Kenya



Modified from Omondi (1994).

Another reason why the identification of stakeholders and their entitlement rights is considered important stems from the growing concern about the future of interlocking ecological and economic systems that are characterised by growing social disparities and unsustainable use. Inequity in ownership and access to natural resources contributes to such unsustainable use (UN 2001) and entitlement rights should therefore be clear to all the stakeholders involved.

In analysing the stakeholders in biodiversity conservation in Taita we consulted the views of Mikalsen and Jentoft (2001), Byers (2000), Freeman (1984), Donaldson (1995), Mitchell *et al.* (1997), Clarkson (1995), Borrini-Feyerabend (1996), Burton and Dunn (1996), Dobson and White (1995), Wicks, Gilbert, and Freeman (1994) and Emanuel de Kadt (1997), as discussed in Chapter 3. The diagrammatic representation of actors in Figure 8.1, which classifies the social actors into local, national and international ones, is based on the typology of Omondi (1994). In further elaborating this into the classification presented in Table 8.1, we also used the list developed by Borrini-Feyerabend and Brown (1997).

Table 8.1
Checklist of social actors in wildlife and forest biodiversity conservation

Social actors	Examples
Government agencies	
National government agencies	Central government agencies
Government agencies with legal jurisdiction over relevant biodiversity resources	Various government departments and agencies
Local governance structures	
Government authorities at district and regional level	Government authorities/departments at district and regional level
Local government	Local government and local government services *e.g.* education, health, administration, police, judicial system
Political authorities prescribed by statutes	Local government ward and constituency elected representatives; Councillors and Members of Parliament
Political party structures at various levels	Main political parties
Local bodies that link different communities	Councils of village representatives, representatives of various interests at district level *e.g.* associations
Non-governmental organisations	
Relevant national NGOs	Dedicated to development and environment at local, national and international levels
Cultural and voluntary associations various kinds	Clubs for the study of unique national landscape, tourist of associations
National service organisations	Lions clubs
National interest organisations	Workers union etc.
International organisations	
Foreign aid agencies	Donors
United Nations agencies	UNEP, FAO, UNICEF
International unions	IUCN
International (environmental) NGOs	WWF
Other national and international organisations	
Staff and consultants of relevant projects and programmes	
Consultants	
Religious bodies	At various levels
Universities and research organisations	Local and foreign researchers
Local communities	
Individuals	Residents, owners and users of land holdings
Families and households	Long-term local residents
Traditional groups	Extended families, clans and kinships
Community-based groups	Associations of resource users, neighbourhood associations, gender or age-based associations
Local traditional authorities	Village councils of elders, traditional leadership
Private sector	
Business and commercial enterprises	Local, national and international. From local cooperative to international corporations, sawmills and tour operators
Local banks and credit institutions	Banking activities
Individuals in their own capacity	
Individuals	Can be of any of the categories listed above, but are mentioned separately for their special role in nature conservation

Borrini-Feyerabend (1996) uses the broader term 'social actors' to refer to individuals, groups and institutions who interact with natural resources on any basis, including casual or indirect. She uses the term 'stakeholder' to refer to those social actors who have a direct, significant and specific stake in a given territory or set of natural resources. This study adopts a general definition of 'stakeholder' as defined partly by Freeman (1984) and Borrini-Feyerabend (1996),

> … as any group or individuals, including various institutions, social groups and individuals who can affect or is affected by the achievement of the firm's objective or who possess a direct, significant and specific stake.

Any effort to identify stakeholders, should take three aspects into account (Borrini-Feyerabend 1996):

1. Stakeholders are aware of their interest.
2. Stakeholders possess specific capacities (*e.g.* knowledge, skills) and/or comparative advantages (*e.g.* proximity, mandate).
3. Stakeholders bear the cost or are willing to invest specific resources (*e.g.* time, money, political authority) or influence management instruments.

Because of the number of 'would-be stakeholders', it is necessary to develop a checklist of 'social actors who are potential stakeholders in protected area management for wildlife and forest biodiversity conservation'. The checklist we developed for this study is presented in Table 8.1.

As we already noted in Chapter 3, where we discussed the views of Mitchell *et al.* (1997), the likelihood of social actors to possessing specific characteristics, such as being aware of their interest, possessing specific capacities or willingness to invest in biodiversity conservation and management, is very dynamic. Once the social actor is identified as a stakeholder, (s)he may demonstrate any or a combination of the three factors of stakeholder salience, *i.e.* power, legitimacy and urgency. In various respective combinations, the stakeholder may be definitive, expectant or latent (see Chapter 3).

In general, stakeholders in wildlife and forest biodiversity management will fall into one or more of the following categories:

- those whose interests are affected by wildlife and forests and/or by management strategies and action plans, as well as those whose activities significantly affect wildlife and forests;
- those who control or influence management instruments relevant to the wildlife and forest conservation;
- those who possess important information or expertise and capacities needed to address wildlife and forest issues and to develop management strategies and action plans.

Stakeholders in Taita

In this section, we will discuss the stakeholders in biodiversity conservation and management in Taita. These are summarised in Table 8.2, together with the specific actors in biodiversity conservation and management in Taita, as well as the origin of their stake and their respective interests. As noted in Chapter 3, these stakes may originate from several perspectives, such as

Table 8.2
Main biodiversity stakeholders and social actors in Taita

Main stakeholders	Specific actors	Origin of stake	Specific interest
Government agencies	- Government agencies with legal jurisdiction over relevant biodiversity resources - The Kenya Wildlife Service (KWS) - The Forest Department (FD) - The National Museums of Kenya	- Institutional mandate	- Conservation of the respective resources
Local governance structures	- Provincial administration - Government authorities at district level - Local government - Political authorities prescribed by statutes - Political party structures at various levels - National park authorities	- Institutional mandate - Socio-political concerns	- Local socio-economic development and environmental conservation - Social, cultural and political interest
Non-governmental organisations	- Relevant environmental NGOs - National interest organisations - National service organisations - Non-governmental bodies that link different communities - Friends of Tsavo (FOT). Charitable trust dedicated to the conservation of wildlife in Tsavo. Funds raised from business enterprises - Cultural and voluntary associations of various kinds	- Institutional interests, capacities and concerns	- Local socio-economic development and environmental conservation
International organisations	- Foreign aid agencies - International unions - International government bodies	- Institutional interests, capacities and concerns	- Local socio-economic development and environmental conservation
Other national and international organisations	- Universities and research organisations - Staff and consultants of relevant projects and programmes - Religious bodies	- Institutional interests, capacities and concerns - Moral and spiritual concerns	- Local socio-economic development and environmental conservation
Local communities	- Local individuals - Families and households - Traditional groups - Community-based groups - Local traditional authorities - Local resources users	- Geographical proximity - Historical association - Dependence for livelihoods - Economic interest	- Personal needs - Economic development and environmental conservation - Equity and justice
Private sector	- Business and commercial enterprises *e.g.* local banks and credit institutions, saw millers and tour operators	- Economic interest	- Economic gains
Individuals in their own capacity	- Individual influential persons	- Depending on relationship to other categories	- Depending on relationship to other categories

institutional mandate, geographical proximity, historical association, dependence for livelihoods, economic interest or other capacities and concerns (Borrini-Feyerabend 1996: 6). We will further highlight the different actors below.

Government agencies

Government agencies with legal jurisdiction over relevant biodiversity resources are mainly the departments or agencies directly mandated by law to manage specific resources. In the case of wildlife and forest biodiversity conservation, the most important are the Kenya Wildlife Service (KWS) and the Forest Department, respectively, which we discussed in the previous chapter. KWS – which currently falls under the office of the President[1] – is responsible for wildlife management and conservation. The Forest Department – which falls under the Ministry of Environment and Natural Resources – is in charge of the forest reserves that fall under the Forest Act. Another important agency is the National Museums of Kenya (NMK) under the Ministry of Cultural and National Heritage, which is in charge of forests under the National Monument Acts. Other government agencies include the National Environment Secretariat (NES),[2] the National Environment Council (NEC), the National Environment Management Authority (NEMA), the Department of Resources Survey and Remote Sensing (DRSRS) in the Ministry of Planning and National Development and various ministries, such those in charge of tourism and wildlife, agriculture and livestock, lands, water and fisheries.

There are also government initiatives focussing on the implementation of the Convention on Biological Diversity (CBD). The Kenyan Government became party to the CBD on 11 June 1992 and ratified it on 26 July 1994. Kenya is therefore obligated by the CBD to ensure that its objectives are attained (RoK 2000a). In this context, several initiatives have already been taken. These are listed in Box 8.1.

Local governance structures

Local governance structures include the provincial administration, relevant government departments at district level and local government.[3] In terms of jurisdiction, Kenya is divided into provinces headed by Provincial Commissioners (PCs). These are further divided into districts headed by District Commissioners (DCs) and these, in turn, are divided into Subdistricts or Divisions headed by District Officers (DOs). The divisions are further divided into locations under chiefs and sublocations under subchiefs. Among these, the district level

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1 This may change at any time. We noted earlier that political interest and power play critical roles in the management of wildlife resources which are considered important for attracting foreign income through tourism.

2 The NES was established in 1974 to provide policy guidance and coordination of all stakeholders involved in the protection and enhancement of environment protection (RoK 2000).

3 The system of provincial administration is a colonial legacy designed to keep Africans in their places. The British introduced the system to Kenya, perfected it to achieve the imperialist goals of occupation and, arguably, of repression. Gertzel (1970) argues that the provincial administration was designed to institutionalise the government of the day at local levels, where it is easily accessible, sympathetic, understanding, but authoritative; listens to local people, helps alleviate their grievances and arbitrates in their disputes. This, it is contended, is the philosophical basis of the provincial administration.

Box 8.1
Kenya's efforts to implement the Convention on Biological Diversity

Kenya has taken the following initiatives and set up the following institutions and organisations to facilitate the implementation of the Convention on Biological Diversity (CBD):

- *The CBD Focal Point:* the National Environment Secretariat (NES) is the National Focal Point for CBD and the centre of operations of the Global Environmental Facility (GEF). NES also plays a role as a Biodiversity Data Management Centre. It has developed a meta-database of institutions with biodiversity data and information. It is also a clearing–house mechanism (CHM), a national focal point for the purpose of information exchange, which aims at promoting and facilitating technical and scientific cooperation among the contracting parties.
- *The Centre for Biodiversity:* a Centre for Biodiversity was established in 1991 at the National Museums of Kenya. Initially, this Centre was referred to as the National Biodiversity Unit (NBU). In collaboration with other institutions, it coordinated the Kenya Country Study on Biodiversity (1992). The Centre is the custodian of the East African Herbarium and has the largest collection of information on plants and animals, including specimens, in the country (RoK 2000).
- *The Inter-Ministerial Committee on Environment (IMCE):* through the Ministry of Environment and Natural Resources, IMCE was established under the NES to provide a forum for discussions of environmental matters by all governmental stakeholders. A subcommittee was formed under IMCE to give guidance on matters pertaining to biodiversity. This subcommittee has been expanded to include NGOs, intergovernmental organisations and the private sector.
- *The National Environment Action Plan (NEAP):* the NEAP process was a consultative process which culminated in the preparation of the NEAP Report (1994), establishing the status of the environment in Kenya and suggesting actions for sustainable development. NEAP was to provide a basis for translating Agenda 21, which is a Global Programme of Action on Environment and Development. Most of the proposals of the NEAP report are included in the Environmental Management and Coordination Act enacted in January 2000.
- *The National Bio-safety Guidelines, Regulation and Framework:* these have been developed, and a Committee on Bio-safety has been established under the National Council for Science and Technology, to coordinate the implementation of the Cartagena Protocol on Bio-safety to the Convention on Biological Diversity. This protocol, adopted in Montreal (Canada) on 29 January 2000, seeks to protect biological diversity from the potential risks posed by living modified organisms resulting from modern biotechnology (www.biodiv.org/biosafety/background.asp).
- *The National Bio-Safety Strategy and Action Plan:* this has been completed with the main objective of setting out national priorities, strategies and action plans for biodiversity conservation in the country, pursuant to the objectives of the CBD.
- *The Inter Agency Committee on Access to Genetic Resources and Benefit Sharing:* this was established to coordinate access and equitable sharing of benefits accruing from biodiversity utilisation. In reality, there are several institutions, which have their own administrative agenda and retain legal control of all matters of natural resource management within their jurisdiction.
- *Report to the CBD Secretariat:* the first report to the CBD Secretariat was submitted in 1998 just before the 4th Conference of Parties (CoP4) in Bratislava, Slovakia.
- *Regional cooperation:* the main initiatives at the regional level are the East Africa Cross Border Biodiversity Project, currently being implemented in Kenya, Tanzania and Uganda, and the Lake Victoria Environment Management Programme, which is focussing on management issues for the lake, including the water hyacinth problem. A regional project is also being developed on the Conservation and Sustainable Use of Biodiversity of the Eastern Rift Valley Lakes. The participating countries are Kenya, Ethiopia and Tanzania.
- *The Environmental Management and Coordination Act* was enacted in January 2000 and its institutionalisation through the creation of a National Environment Management Agency (NEMA) is in progress.
- There are many other government and NGO initiatives such as the creation of forums to deliberate on issues of biodiversity conservation. Examples are the Kenya Biodiversity Working Group (KBEG) and the Kenya Forest Working Group (KFWG).

appears to be the central unit of government operations at local level. However, the District Commissioner (DC), the District Officer (DO), the chief and the subchief have similar responsibilities in their respective areas of jurisdiction. Each of these officers has a responsibility to portray the government as a benevolent authority.

The *provincial administration*, which falls under the Office of the President, serves all roles of the government in the goal of national unity, the supremacy of the law and equal rights. Under the Magistrates Jurisdiction Act (1981), the provincial administration is empowered to arbitrate over various land issues. Technocrats representing all government ministries at the district level fall under the provincial administration. In this regard, the DC chairs over 20 different district level committees. Therefore, the DC appraises the performance of other district heads. These many responsibilities have, in turn, rendered the institution vulnerable and incapable of delivering services to meet the increasing needs at local levels.

The provincial administration has a stake in the field of wildlife and forest biodiversity conservation and management, as it represents the national government at local levels. On the basis of its design, it may be argued that it plays a coordinating role. However, as KWS is a semi-autonomous parastatal, it has only limited representation in the provincial administration, unlike the Forest Department, where the District Forest Officer (DFO) falls directly under the District Commissioner.

It can be argued that all *governance structures at the district level* are involved in wildlife and forest biodiversity management in one way or another in the context of their legal mandates and jurisdiction. The question would not be the role each one plays, but how they are linked and coordinated as one group of stakeholders to achieve the goals of development and conservation. However, there are departments which deal with biodiversity directly on the basis of a direct mandate to conserve and manage wildlife and forest biodiversity.

The *local authority* is one of the administrative arms of the central government, which includes the civil service and the public corporations. It is a system of public administration set up under the Local Government Act, Cap. 265 of the laws of Kenya. The Act creates the local authorities that are charged with the responsibility of administering the local areas and local affairs and of providing services to that particular locality. Various types of local authority fall under this Act, including municipal, urban/town and county councils, but they all share a common legal corporate status as established by Sections 12, 28 and 41 of the Act. Under the Act, each local authority is a separate legal entity.

The local authorities, in particular, the county councils, manage all the national reserves, supported by KWS in the case of wildlife. With the assistance of the Forest Department under the Ministry of Environment and Natural Resources, they are also responsible for the management of all non-gazetted forests on trust lands. However, the main preoccupation of the local authorities is the provision of various services, such as garbage collection, sewerage and water, particularly in the town centres, municipalities and cities. Box 8.2 on the Taita Taveta County Council[4] is a case in point.

[4] There are three local authorities in Taita Taveta district: Taita Taveta County Council occupying 12,673 km^2 (74.5%), Voi municipal council covering an area of 348 km^2 (2.2%) and Taveta town/urban council, which covers 3,953 km^2 (23.3%) of the total area of the district.

Box 8.2
Taita Taveta County Council

Taita Taveta County Council (TTCC), like most local authorities in Kenya, is mostly preoccupied with the provision of various municipal services, the basis of which lies in the Local Government Act, policies and institutional set-up. However, most of the services, such as sanitation, the provision of piped clean water and town planning, are directly related to the environment. Local government, therefore, is one of the major stakeholders in environmental matters. It is in this context that the Ministry of Local Government recommended setting up Environmental Committees. However, the scope of these committees is limited, as the critical issues of wildlife and forest biodiversity conservation are not accorded appropriate attention. Although some of the biodiversity areas fall under the jurisdiction of TTCC and several forest areas under its jurisdiction experience severe encroachment problems, waste drainage into Mwatate River by sisal estates dominates the agendas of the Environmental Committee. The Forest Department's involvement in the management of the TTCC forest reserves and the decentralisation of central government planning and district administration, have usurped and diminished the capacity and development opportunities of TTCC in forest management. Nonetheless, the TTCC could have a critical role in the conservation and management of biodiversity in the forest reserves under its jurisdiction.

Local authorities and the provincial administration interact through *Environmental Committees*. Most local authorities have elected environmental committees to deliberate on issues pertaining to the environment in general. As opposed to statutory or mandatory committees, the environmental committees are optional. The optional committees are appointed to suit the specific needs of the local authority, or a general need that may be recognised and recommended by the Ministry of Local Government. It was realised in 1993 that recognition of environmental issues is critical for development, hence sustainability and, in the same year, the Ministry of Local Government sent a circular to all local authorities requiring them to deliberate on the environmental issues within their jurisdiction.[5]

The local authority environmental committees, like other committees, are chaired by councillors who also represent their councils in the district environmental committees. These, in turn, are chaired by the District Commissioners with the District Environmental Officers (DEO) acting as secretaries. In most cases – including that of TTCC – the DEOs are also the secretaries of the environmental committees of the local authorities. The chief officers of the council, particularly the clerks, are members of all district committees. The environmental committees deal mainly with environmental health matters, such as waste disposal, which is also the concern of the Town Planning Committee.[6] A councillor,[7] who also represents the council on the District Environmental Management Board (DEMB), chairs the TTCC Environmental Committee.

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5 Circular 27/93, dated 17 September 1993, Ref: C/438/C232, establishment of Environmental Committees, under Section 91 of the Local Government Act.

6 The councils are also represented on other external committees in which may have an interest, particularly those under the district administration. These include the District Executive Committee (DEC), the District Development Committee (DDC), the District Agricultural Committee (DAC), the District Education Board (DEB), the Board of Governance of the Taita Taveta Farmers Training Centre (BGFTC), the District Land Control Board (DLCB), the Liquor Licensing Court (LLC), the District Trade Joint Loan Board (DTJLB), the District Environmental Management Board (DEMB) and any other that the councils may wish to be represented on.

7 Mr Jovis Muchira from Ronge Ward, the chairman of the Environmental Committee of Taita Taveta County Council, interviewed on 3 February 2000.

In this way, the council is represented in decision-making on environmental issues in the area under its jurisdiction, but which also falls under the district administration. This does not necessarily mean, however, that the decentralisation of the central government, although extending its tentacles to the periphery through the subunits,[8] encourages the development of autonomous local authorities or permits horizontal integration at the local level. On the contrary, decentralisation is here being implemented in a top-down manner.[9]

Non-governmental organisations (NGOs)

There are several international and local NGOs which are directly and/or indirectly involved in environmental conservation and the sustainable use of natural resources. Their levels of operation vary, ranging from advocacy to research, sourcing funding and implementing conservation projects. Examples are:

- The East Africa Wild Life Society, which is engaged in research, community forestry and the implementation of the USAID-funded CORE project.[10]
- The African Conservation Centre and African Wildlife Foundation, which are both involved in research and the implementation of the CORE project.

In wildlife and forest biodiversity conservation, it is recognised that 'NGOs in general did not play a major role during the negotiations for the Convention on Biological Diversity, but their diversity and varied competence are critical to its implementation' (Sanchez and Juma 1994: 322). National and international NGOs are taking over responsibility for the management of some natural resources, such as parks and protected areas. International NGOs have taken proactive steps, not just to influence global wildlife and forest policies, but also to formulate it. An example is the WWF/IUCN *Forests for Life* programme, targeting protected areas (WWF International and IUCN 1998).[11] However, their specific roles in the context of entitlement rights are not clear. The NGOs which are presently involved directly in natural resource management, particularly in running parks and protected areas, have often clashed with both competing local interests and governments (Anderson *et al.* 1998).

International organisations

International organisations may play a substantial role in wildlife and forest biodiversity conservation through funding, research and the implementation of conservation and development projects. In Taita Hills, the Global Environmental Facility is involved in forest conservation through the Cross-Border Biodiversity Biodiversity Project. The Danish International

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8 This does not imply that the local communities are represented in the government, but that the government is represented at the local level. This is still a top-down system and does not necessarily imply genuine decentralisation. This system is under scrutiny and may be abolished in favour of local authorities, depending on the kind of constitution that will be developed in Kenya.

9 UNDP (1994: 65), describes three forms of decentralisation: deconcentration, delegation and devolution. The most common form is deconcentration, by which the functions of the central government ministries are assigned to suboffices. This has been attempted in Zimbabwe and Kenya through the establishment of development committees that operate from the village levels to the district or provincial levels, respectively.

10 Conservation of Resources through Enterprise (CORE) is a USAID programme which, together with its partners, helps local communities learn to manage natural resources and implement enterprises that provide local benefits. The programme provides training and technical assistance to community-based organisations (CBOs) to improve governance, financial accountability and transparency.

11 WWF International and IUCN (1998) Forests for Life Homepage, www.panda.org/forests4life.

Development Agency (DANIDA) is involved in development and conservation projects in Taita Taveta District and works through various government departments. GTZ did an inventory survey with the aim of initiating development projects which may include biodiversity conservation.

Other national and international institutions

These include universities and research institutions, staff and consultants of relevant projects and programmes and religious bodies. Research-based institutions include the Kenya Forestry Research Institute (KEFRI), Public Universities, the Kenya Agricultural Research Institute (KARI), the Kenya Marine and Fisheries Research Institute (KEMFRI) and others.

Local communities

In this section, we shall first look at traditional local authorities, after which we shall address various components of communities, such as community-based organisations and individuals. Finally, we shall address to what extent individual community members perceive themselves as stakeholders in biodiversity conservation.

Prior to the advent of colonialism, the *traditional local authorities* existed in the form of various leadership systems and social organisations through which natural resources were managed. From time immemorial, organised tribes settled in specific areas and evolved highly complex social and political institutions for controlling resources. Indeed, natural resource management was pivotal and reflected the way communities organised themselves within the bounds of their environment. Decision-making institutions, mostly under the leadership of the elders, managed natural resource utilisation based on a framework of their worldview as codified in their ethics, norms and beliefs (McNeely 1989; Field Juma 1996). These traditional decision-making institutions were in the proximity of the resource user, so that decision-making was knowledge-intensive and participatory. Although the Taita people did not evolve a centralised political system, they had a kinship-based type of leadership, which performed the above functions.

In general, the traditional systems of resource management and entitlement structures responded dynamically to ecological, social and economic changes. They also demonstrated a high degree of mutual reciprocity among the families and communities as one of the survival strategies in times of calamities and scarcity. In this way, risks were redistributed and social obligations strengthened. However, these systems were shattered with the advent of colonialism and the impact was beyond their in-built resilience. But now these systems and, in particular, their knowledge and innovations are recognised as crucial to biodiversity conservation. The Convention on Biological Diversity, Article 8j, in addition to the preamble states that:

> [Each Contracting Party shall, as far as possible and as appropriate] subject to its national legislation, respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefit arising from the utilization of such knowledge, innovation and practice. (UNEP 1992)

Currently, *community-based conservation* in wildlife and forest management are designed to take the place of the original traditionally ethnic-based resource management systems. However, these initiatives, though based on the traditional systems of resource management, are mostly crisis-driven and are compounded by multiple legal orders. Moreover, they are initiated by the government and often, but not always, through the influence of other stakeholders, such as the NGOs. Examples of the latter are the KWS-linked Taita Taveta Wildlife Forum, wildlife village committees, the Taita Taveta landowners and the Mbololo Wildlife Committee. Most of these organisations are, however, inactive and riven with leadership wrangles. The Mramba Community Sanctuary, together with the Lualenyi and Oza ranches, plan to start a Lumo Wildlife Sanctuary. Wushumbu, Bura, Mbale and Kasigau ranches intend to form the Wumbubaka Community Sanctuary.

Specific *local individuals*, particularly politicians, influence decision-making and local people's behaviour through mobilisation. Some individuals also communicate directly with government officers over certain matters of concern.

Private sector

Finally, there are resource users other than local communities. They include various tour operators who bring tourists to the park and sanctuaries. At present, there are no sawmills in any forest of the Taita Hills, but a private company buys resin from the Forest Department and there are local people who collect resin from trees on private land in Mbololo (Plate 3). Another group of stakeholder is formed by the Game Sanctuaries, which are licensed private enterprises keeping wildlife on their land to attract tourists. The main ones are the Taita Hills Wildlife Sanctuary and Taita Rukinga Wildlife Sanctuary.

Interaction under legal pluralism

As we have said, the stakeholders with legal jurisdiction are the departments and agencies directly mandated by law to manage specific resources. Other stakeholders with some specific legal mandate who affect or are affected by wildlife and forest conservation include the local governance structures. Various NGOs through their registration have specific mandates based on the laws guiding their activities. Some have specific rules or procedures guiding their activities. The local communities, apart from being bound by legal statutes that deal with natural resources in general, have their traditional norms, morals and principles. All these laws and rules operate together in guiding the behaviour of various stakeholders in relation to natural resources, in general, and wildlife and forest biodiversity, in particular. All institutions and stakeholders interact with each other. These interactions constitute what anthropologists describe as 'pluralism': a situation in which multiple institutional and legal regimes provide a basis for claiming a variety of entitlement rights over natural resources.

Stakeholders as perceived by members of local communities

Table 8.3 shows how the inhabitants of Taita identified seven main groups as stakeholders involved in wildlife and forest management in Taita. In addition, they distinguished 'influential individuals', categorised in Table 8.1 as 'individuals in their own capacity'. About 91% of

the respondents regard relevant government departments and agencies as the ones mostly involved in wildlife and forest management, while 81% attach an important role to local governance structures, 69% to (environmental) NGOs, and the same for international organisations and other institutions such as research organisations and religious bodies. Local communities are seen by 63% of the respondents as important stakeholders, while 9.5% regard tour operators and other private sector actors as such. 'Influential' individuals are seen as important stakeholders by 22% of the respondents. These groups of stakeholders were also ranked in terms of their importance in wildlife and forest management in Taita (Table 8.3).

The relevant government departments and agencies were ranked first, followed by the local communities, local governance structures, NGOs, individuals and private sector actors (principally tour operators), respectively. It is clear that in the local setting, local communities recognise that they are important in wildlife and forest biodiversity conservation.

Table 8.3
Rank of main actors in biodiversity conservation in Taita (n = 169)

Groups of stakeholders	Identification and involvement	Rank (importance)
Government departments and agencies	91.1	40.8
Local governance structures	81.1	18.9
NGOs	68.6	4.1
International organisations	68.6	4.1
Other national and international organisations	68.6	4.1
Local communities	63.3	20.7
Private sector	9.5	0.6
Individuals in their own capacity	22.48	1.2

Table 8.4
Local community members' awareness of their 'stakeholdership' (n = 169)

Category	Member %
Not in any group	60.7
Local community	
As group of any kind	0.0
As individual or household	32.1
NGO	1.8
Government departments and agencies	
Government department	1.2
KWS	0.6
Local governance structures	1.8
Private sector actor (*i.e.* tour operators)	0.0
Influential local individuals	1.8
Total	100.0

In order to assess whether the *individual members of local communities* consider themselves as stakeholders, the respondents were asked to indicate to which group they belonged. About 60% indicated that they did not belong to any group, while about 40% said that they were members of various groups (Table 8.4). About 31% indicated that they belonged to a

local community group, while only 0.6% identified themselves as individual stakeholders. The rest identified themselves as members of NGOs (1.8%), government departments (1.2%), the KWS (0.6%), local governance structures (1.8%) and influential individuals (1.8%). This observation indicates that the majority (60%) of the members of local communities do not perceive themselves as individual stakeholders in wildlife and forest biodiversity conservation. However, this does not mean that they do not affect or are not affected by wildlife and forest conservation and management, as will be seen in the next two chapters. Conceptually, this may be viewed as an issue inherent in the definition of stakeholder, which seems to refer only to those who invest or are involved directly in conservation. Historically, this may be explained by the fact that natural resource management in the pre-colonial era was community-based and that in the colonial and post-colonial eras the management regime has tended to alienate local communities. Therefore, as individuals, members of communities do not perceive themselves as important, but they do consider themselves to be important as a group. If the respondents perceive that they are affected by wildlife or forest conservation through being seen as stakeholders by others, they also tend to indicate that they belong to the group of the local communities.

The role of stakeholders in wildlife conservation in Tsavo National Park

As we have noted earlier, several districts share Tsavo National Park. It occupies 62% of Taita Taveta District, 20% of Kitui District, 9% of Tana River District and 3% of Makueni District. This makes the governance structures and inhabitants of these districts stakeholders of Tsavo National Park. Since Tsavo is a national park where the legal jurisdiction over wildlife management is vested in a parastatal body, there is very limited involvement of the local government structures. However, compensation to local communities suffering injuries or death from wildlife is paid by the central government, Ministry of Environment and Natural Resources (MENR), while the District Commissioner chairs the committee responsible for compensation at the district level. The Community Wildlife Service (CWS) has become the main link between the KWS and local government structures, NGOs and local communities, while KWS' other departments (including research, tourism and licensing) deal with private sector actors who are also stakeholders.

Wildlife conservation attracts wide attention and literally, everybody at the local level is a stakeholder. In Taita, human-wildlife conflicts (see Chapter 9) are critical and most endeavours by the park management are to address this issue through various approaches, including compensation, benefit sharing, incentives and involvement of the local communities in the management of wildlife. However, this has not been successful, because the complex nature of the stakeholder concept has not been understood by the stakeholders themselves nor by the Park management. Neither is the concept recognised in legal structures, although it is frequently mentioned in wildlife policy documents, management strategies and action plans.

The role of various stakeholders in the Taita Hills forest reserves

All the forest reserves on the hilltops in Taita were under the trust lands. In the 1950s, the Forestry Department, which was part of the Ministry of Natural Resources, began to have some responsibilities for their management. In 1955, twelve pieces of forest in Taita, covering 4,277.29 ha, had been set apart as forest reserves under the TTCC. The list kept on growing to such an extent that by 1983 there were 27 forest reserves, covering an area of 11, 015.69 ha. The TTCC had accepted the transfer of these forest reserves to central government ownership for gazetting as protected government reserves under the Forest Act, Cap. 385 in 1971. In a county council resolution of 29 June 1973, the council had listed 22 forest areas to be transferred to government land.[12] When DANIDA proposed to assist in forest development by 3 December 1984, the list of forests grew to 43, including potential forest areas to be transferred to state land under the resolution of 23 December 1984.[13] There were intense discussions before the resolution was made, as the TTCC was not willing to give up the forest areas.[14]

The transfer process has been cumbersome, such that, in some situations, it had to be done through a push by donors and lobbying by some NGOs which believed that these forest reserves under local government could only be conserved if transferred to central government. Because of resistance by the TTCC, not all the forest reserves set aside were transferred to central government for gazetting. However, by 1991, most of the listed forests were gazetted. Currently out of 47 forest fragments in the Taita hills, 24 have been gazetted, while the remaining 23 have not. The gazetted ones fall directly under the Forest Department, whereas the non-gazetted fall under the TTCC, but are managed with the assistance of the Forest Department.

Essentially, the gazetting of the 24 forests in Taita was mainly in order to pave the way for bilateral funding by the Danish government through DANIDA, which was to support forest activities, among other development activities.[15] There were other institutions, which played a lobbying role in their gazetting. Among them was Kenya Jaycees (Junior Chamber International), an NGO affiliated to Jaycees International. This NGO complained about the loss of forests in Taita Hills and under its motto, '*More trees, less deserts*', it launched a tree-planting project campaign, with a target of planting 250,000 trees throughout Kenya in the year 1978. About 50,000 trees were planted in the Coast Province.[16] The organisation established a 10 ha forest in Voi called Jaycee forest. The National Christian Council of Kenya (NCCK) has also demonstrated interest in the Taita hills forest in the past by funding the Mwangere Green Belt

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12 CC/FOR 1/Vol. VI/267, Resolution Number 16/73 of the full Council meeting held on 29 June 1973.

13 CC/FOR 1/Vol. VII/60 Resolution 36/84 of 23 December 1984. List of Forests for DANIDA CC/FOR 1/Vol. VII/285 made on 3 December 1984.

14 CC/FOR 1/Vol.VI MENR letter Ref: 8/7/72 of 24 September 1984, requesting District Land Registrar to register 24 forest areas under government. The TTCC responded by asking the registration to be done under Trustland Forest and not Government Forest, CC/FOR 1/Vol. VI/273 of 9 October 1984.

15 DANIDA: Negotiations with the Danish government to support afforestation in Taita Taveta district. The DANIDA team visited Taita on 22-26 November 1983 (File CC/FOR 1/Vol. VI/3/57/326).

16 Ramesh Shah, Project Chairman JAYCEES, Tree Plantation Project, Hellen EPD/COAST/17 of 2 February 1978 in CC/FOR-I/Vol. V.

Project.[17] Currently, the East African Wildlife Society is involved in the management of the Taita hill forests. Other stakeholders include the DANIDA programme and the East Africa Global Environmental Facility (GEF) Cross-Border Biodiversity Project. The National Museums of Kenya, through its director, raised important concerns over important indigenous forest areas in 1984. It requested the TTCC to facilitate gazetting of Mbololo, Ngangao and Kitobo Forests.[18]

Table 8.5
Summary of stakeholders and their roles in forest biodiversity conservation in Taita hills

Stakeholder	Specific role
Government agencies	- The Forest Department has legal jurisdiction over gazetted forestland - The National Museums of Kenya lobbied for the gazetting of Ngangao, Mbololo and Kitobo Forests under the National Monument Act
Local governance structures	
- The Provincial Administration	- Administrates the issuing of licences to users of forest products. - Oversees the operation of Forest Department through the District Commissioner - The District Commissioner chairs all District Committee meetings - Other government departments facilitate various processes, such as the transfer of land ownership from the local government to central government
- The Local authority (TTCC)	- Trustee of the trust land - Participation in District Environmental Committee meetings - Transfer of forest jurisdiction to the central government
Non-governmental organisations	- The Jaycee tree planting project campaign - The National Christian Council of Kenya (NCCK) funded the Mwangere Green Belt Project - The East Africa Wild Life Society encouraged community involvement in forest conservation and lobbies for conservation
International organisations	- The Danish International Development Agency (DANIDA) provides funding for forest conservation - The Global Environment Facility (GEF) funds the Cross Border Programme
Private sector actors	- Both legal and illegal harvesting of trees
Local communities	- Legal and illegal use of forest resources. - Encroachment on forestland - Conflicts with forest wildlife
Individuals in their own capacity	- Mr J. Richard Mjomba Mwanyasi (an individual) noted the degradation of the forest and wrote to the DFO, but was not heard since he wrote without any capacity. - Dr Richard Leakey as an individual and in his capacity as director of National Museums of Kenya by 1984 put a lot of effort in forest conservation by pressurised for gazetting.

[17] Progress Report on Forest Management in Taita Taveta District 1970 by F.O. Obiero, Ministry of Environment and Natural Resources

[18] CC/FOR 1/Vol. VI National Museums of Kenya, Ref: 105.1/1752. Dated 12 September 1984.

Before the handing over of the TTCC forest reserve to the Forest Department for gazetting and management, these forests were under pressure from overuse and encroachment. The TTCC used to issue licenses for the harvesting of various forest products, particularly timber, firewood, medicinal plants and the use of forest areas for grazing.[19] All the licenses were misused, as there was no control or capacity to enforce such conditions of the licenses relating to quantities, method of harvesting and type of product. Following the extensive loss of these forests, some foresters of the Department of Forestry disputed the issuing of licenses to harvest any forest products, particularly firewood.[20] The clearance of forest was so extensive that an individual member of the local communities complained to the District Forest Officer (DFO). A local individual, Mr J. Richard Mjomba Mwanyasi, wrote a letter to the DFO on 8 August 1974 complaining about misuse and excessive clearance of Chawia and Susu forests. He called for immediate remedy. The DFO scribbled a comment on the letter, '*the concern is good but in what capacity'*.[21] The DC had also noted extensive loss of tree cover, including that on private land, and an order was issued from the DC's office for controlled charcoal burning in all ranches by 24 June 1974.

The use of forest products from government land, in particular from the gazetted forests, was decentralised to the district level in 1982 (Licensing of 'Wananchi' to carry out various operations including harvesting forest products in Government Forest/State land). The licensing is to be done through a committee chaired by the DC with the following members: DFO (Secretary), Forester in the district or District Agricultural Officer (DAO), District Livestock Officer (DLO), District Water Officer (DWO) and District Cooperative Officer (DCO). This committee is also to assist the local council in licensing some operations in its forest reserves that are not yet gazetted.[22] Despite the transfer of the Taita hill forest to the central government and its involvement in the management of TTCC forest, encroachment by local residents and degradation is rife. Ironically, it is implied that the gazetting of forest will enhance the development and conservation of the forests.

Stakeholders in wildlife and forest biodiversity conservation compared

The wildlife and forest biodiversity conservation cases highlighted in this chapter have made it clear that specific stakeholders have a specific stake in forest resources. These examples also show that there are some differences between wildlife and forest biodiversity conservation. These differences are related to legitimacy, power and urgency in wildlife conservation.[23] The Kenya Wildlife Service demonstrates urgency in wildlife conservation, has more

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[19] CC/FOR 1/Vol. IV, dating between 24 May 1976 and 16 December 1976. Payment for 30 m^3 of firewood by GK prisons LPO 443678 for KSh. 213 for August and September 1976, Ref: 9/1/6/Vol. II/23. Cutting grass, CC/FOR 1/Vol. IV/202. Grass per head load cost 30 cents (29 March 1975).

[20] CC/FOR-1/Vol. IV, No. 9/1/6/Vol. II/21 of 25 August 1976).

[21] CC/FOR 1/Vol. IV Mr J. Richard, Mjomba Mwanyasi letter dated 8 August 1974. This is a good example of failure to recognise other stakeholders in natural resource management.

[22] CC/FOR-I/Vol. VI Ref: 3.4.85 dated 26 January 1982.

[23] These concepts were highlighted in Chapter 3 on the basis of the work of Mitchell *et al.* (1997) and refer to the legal or moral claim of the stakeholder (legitimacy), his/her position to influence the decision of the managers (power) and the need for the managers' immediate attention to the claims (urgency).

powers in decision-making and, as a parastatal, has a legal mandate. The Forest Department has a legal mandate, but less power in decision-making, as government bureaucracies cripple it. Nor does the department demonstrate urgency in forest conservation.

Several factors determine the character of the wildlife and forest management institutions. They include the type of resource, economic importance at local and national level and the urgency in conservation of the respective resources. These factors also determine the nature of interactions between stakeholders. However, it is clear that there is incompatibility of interests. Grimble and Welland (1997) reinforce the conclusion of DANIDA (1994) and suggest there is sometimes a serious incompatibility of views between different government departments, sets of local people and even professional advisers.

The main groups of stakeholders at the local level (in this case at district level) are the same for forest and wildlife conservation. They include government agencies and departments, local governance structures, NGOs, international organisations, local communities, private sector actors (*i.e.* commercial resource users other than the local communities) and individuals in their own capacity.[24] The key stakeholders are the agencies or government departments in charge of the management. We summarise below the key issues affecting the relationships between stakeholders, based on power, legitimacy and urgency of their claim over biodiversity management and relate these to a classification of actors as definitive, expectant and latent stakeholders.[25]

Government agencies with legal jurisdiction over relevant biodiversity resources (KWS, FD)
As the management organs, these are in principle the definitive stakeholders, holding legitimacy, power and urgency. This refers both to the institution and its staff. Although they are all legitimate, these institutions possess varying power and their policies and management strategies fail to articulate the urgency of some biodiversity-related issues, such as conservation at the national level. Some initiatives and projects may lack legitimacy, as will be seen in the following chapters dealing with community-based conservation endeavours and wildlife utilisation projects.

Local governance structures
These stakeholders may have all possible combinations of power, legitimacy and urgency and are therefore expectant stakeholders. They may also be definitive stakeholders if they demonstrate power, legitimacy and urgency in their claim or mandate. In most cases, this group of stakeholders is not well coordinated, because of their large number and sometimes conflicting legal mandate and policies. At the district level, the District Commissioner chairs all management committees.

Non-governmental organisations
These may be latent, expectant or, at times, definitive stakeholders. They play critical roles in mobilising management agencies, local communities and finances. Their position is usually realised through advocacy and lobbying.

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[24] No relevant role was detected for other institutions, such as research organisations and religious bodies.

[25] See Chapter 3: definitive stakeholders hold legitimacy, power and urgency; expectant stakeholders only two of these attributes, and latent stakeholders only one.

International organisations and staff and consultants of relevant projects and programmes
As with NGOs, international organisations (foreign aid agencies, international government bodies and international unions), as well as the staff and consultants of relevant projects and programmes, may be latent, expectant or definitive stakeholders. Some also have the support of international law of which Kenya is a signatory. Donors are definitive in most instances and can influence the management decisions by strings attached to the funds. These groups of stakeholders are also large and not well coordinated in their activities, whether in development or conservation of biodiversity. They also view various government sectors as stakeholders who demonstrate power without articulating their mandate.[26] The government structures at the national and local levels have a hand in coordinating them, but are not coordinated in the first place.

Local communities
Local communities may have legitimate and urgent claims, such as those related to human-wildlife conflicts, forest loss and failure to become involved in wildlife and forest biodiversity management. The solutions depend mostly on advocacy and lobbying. In order for them to be 'heard', building alliances, engaging in political action and appealing to the values and conscience of the management of conservation areas are common strategies. These groups suffer as stakeholders through lack of power and a legal mandate, despite being recognised as critical stakeholders in development and conservation projects. Under the current conservation approach, government conservation agencies recognise the need to involve local communities in conservation. Relevant NGOs have also played a major role in mobilising the local communities and bridging the gap between them and the management agencies. In practice, however, they lack the power (and sometimes legitimacy as well) to become definitive stakeholders.

Private sector actors
Businesses and commercial enterprises such as sawmills and tour operators are mainly definitive stakeholders. Sometimes they lack power, but they easily meet their needs and interests when they form associations.

Individuals in their own capacity
The position of individuals as stakeholders depends on which of the former categories they belong, but the example of Mr J. Richard Mjomba Mwanyasi (Table 8.4) shows that the lack of legitimacy and power often means that they are not taken seriously despite making urgent claims.

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[26] Such a case has been observed where several NGOs implementing community conservation projects fail to involve the local government structures, particularly the provincial administration, which chair literally all development and environmental conservation committees at district level. At a CORE meeting on 16 February 2000 at the Tsavo East Education Centre, James Ndungu of KWS community conservation warned the NGOs to involve the local government structures in the CORE project in order to avoid the failure of the project.

Conclusion

It is imperative in biodiversity conservation to identify the stakeholders, how they are involved in, or linked to, the management of protected areas and how they interact with each other. The main stakeholders, particularly the government agencies or departments in charge of biodiversity management and the NGOs, acknowledge the value of involving other stakeholders, but do not consider themselves to be stakeholders in the first place. Stakeholder identification has been a peripheral issue in the management of biodiversity. The management approaches assume that stakeholders are 'obvious' and sometimes provide broad categories, which are too generic to be of practical use. Stakeholder identification therefore provides a methodology for a better understanding of environmental and development problems, as well as interactions, through comparative analysis of the different perspectives and sets of stakeholder interest at various levels.

In this chapter we identified seven main groups of stakeholders. They include government agencies with a legal mandate over the management of wildlife and forest biodiversity, local governance structures (provincial administration, government departments at the district level and local government, as well as political parties and political authorities prescribed by statute), non-governmental organisations, international organisations (aid agencies, international unions and international government bodies), other institutions, local communities, the private sector (*i.e.* resource users other than the local communities, such as tour operators, wildlife sanctuary owners and sawmills). In addition, individuals may play an important role in their own capacity as well. All these stakeholders have a stake in biodiversity conservation. They are aware of their interests and possess specific capacities for wildlife and forest biodiversity management. The attention that these stakeholders command from the management depends on their 'power', 'legitimacy of claim(s)' and/or the 'urgency of the claim(s)'. Those possessing all three attributes (power, legitimacy and urgency) command the highest attention, while those possessing only urgency warrant no more than a passing management attention. This also influences the interactions among the stakeholders, with those who have more command over the attention of the management dominating those who command less.

In most instances, the list of stakeholders is endless, as it includes not only those involved directly in conservation and the management of biodiversity, but also those involved in social, political and economic development. The list also spans from the local to the national and international levels, including all the entities with specific concerns about biodiversity management. Stakeholder identification is therefore an important management imperative for achieving the goals of conservation. It would enable credible management to involve appropriately all the stakeholders in their respective capacities and concerns in decision-making, resource utilisation and investment in conservation, which are the central components of sustainable development.

It is noted that the local communities are central to local economic development and wildlife and forest conservation activities. The government and its agencies of development and conservation aim at improving the welfare of the citizens, while various NGOs contribute significantly in various capacities to achieving the same. The local communities are the original owners of local resources and both the central and local government hold these resources (particularly land) in trust. The local communities therefore ought to play the

central role in mobilising these resources and in their conservation. Ironically, in the course of economic development and conservation, the government agencies in charge and the various NGOs involved have tended to own the respective projects, through failure to involve the local people as owners.

Major private sector resource beneficiaries tend to be corporate bodies from elsewhere, such as the major mining companies, resin-buying companies, tour operators and major wildlife sanctuary owners. These groups of stakeholders are business-oriented and some are rarely involved in conservation unless their support is solicited. However, there is no doubt that this group of stakeholders is important in financing conservation projects. In Taita, it is noteworthy that this group of stakeholders, apart from estate sisal farmers, utilise mainly non-agricultural resources. The income generated by these resources (including wildlife in the Tsavo National Park) may surpass the income generated annually by small-scale agricultural producers, who constitute over 99% of the population.[27]

In this context, local communities tend to feel alienated and perceive all the other stakeholders in the context of colonialism. When local communities are compared with all the other stakeholders, it becomes clear that they experience drawbacks, particularly in their capacities for resource mobilisation. Although they possess indigenous knowledge, they lack modern knowledge, technologies and funds for resource mobilisation. They are also handicapped by problems inherent in government laws, policies, institutions and the project implementation processes, including those initiated by NGOs. The resulting difficulties and conflicts will be addressed in the next two chapters.

[27] The amount of income generated by the major private business ventures relating to wildlife and forest conservation in Taita area is not documented. However, discussions with Dr Tim Allen-Rowlandson (on 3 March 2000) of the Taita Hilton Sanctuary on his attempt to show how tourism impacts on biodiversity conservation, indicated that the sanctuary has received over 100,000 foreign visitors per year since 1993, sometimes more than the Maasai Mara National Reserve.

9

Direct human-wildlife conflicts

This chapter discusses in more detail how and to what extent the local communities are involved in the conservation of wildlife and forest biodiversity. It looks at the direct interactions between the communities and wildlife and forest conservation areas and their resources. We look at both the human impact on wildlife and the impact of wildlife on humans. We begin by noting that human impact on wildlife and *vice versa* exist because of direct interactions and because they are inseparable. The chapter has two main parts. In the first part, we will discuss how the local communities and their socio-economic activities in Taita affect wildlife and their habitats, while in the second we will discuss how wildlife, in both the wildlife and forest conservation areas, affect the local communities. We will further discuss animals sighted, trends in numbers and peoples' perceptions of the nuisance of wildlife. Finally, we will highlight the reasons for increasing direct human-wildlife conflicts during the 1970s and 1990s and extrapolate the trends for the 2020s. In summary, this chapter further clarifies why the local communities are stakeholders in wildlife and forest biodiversity conservation and demonstrates how they bear the costs of these.

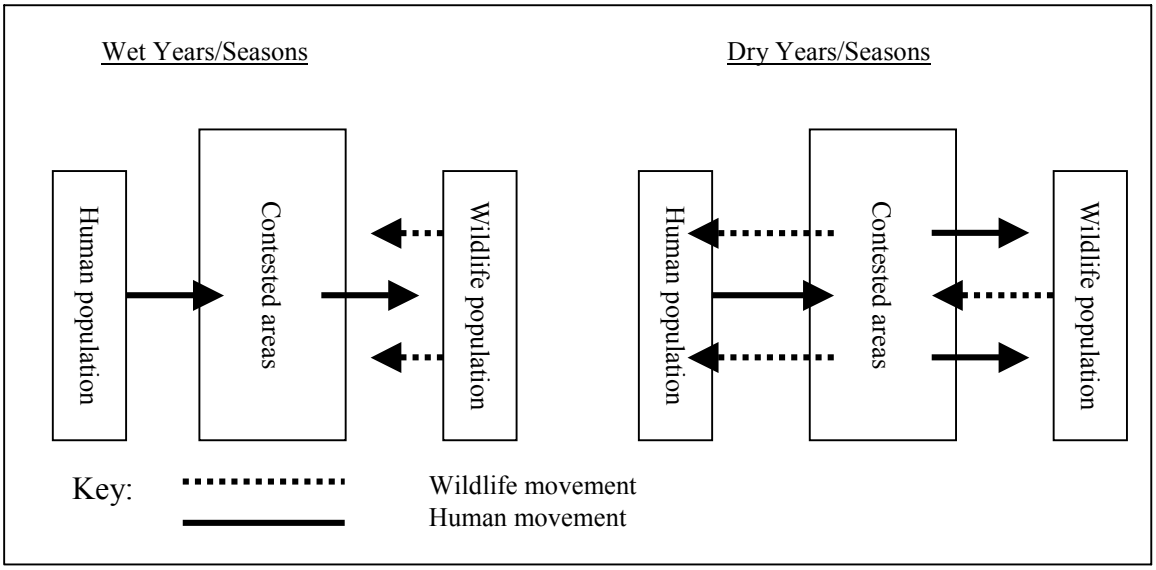
Direct human-wildlife interactions and conflicts

It has been argued that, since time immemorial, tribal people coexisted with wildlife. However, over time, monumental socio-economic and concomitant ecological changes have taken place. In rural areas, close to conservation areas where people live with wildlife, the socio-economic and ecological dynamics have shaped the nature of their interactions with wildlife. These changes are clearly depicted in the history of the Taita people, their demography and socio-economic activities (Chapter 5) and the ecological setting (Chapter 2) in which they have settled for centuries. In the context of these changes, humans depress wildlife in two ways. The first is through competition, either directly for space or indirectly for resources that are used by domestic stock and the human populace. The second form is through the

direct exploitation of the animals, particularly by legal or illegal hunting, and the destruction of wildlife habitats following the exploitation of forest resources. In the same way, wildlife also negatively impacts on humans in various ways, including direct human injury or death, damage to agricultural crops, depredation of domestic animals, competition for space, competition with livestock for pasture and water, transmission of diseases to domestic animals and destruction of physical structures.

Messmer (2000) indicates that 'human-wildlife conflict management' is being applied to situations that involve any negative interactions between humans and wildlife. These conflicts are real or perceived, economic or aesthetic, social or political. Messmer further argues that human-wildlife conflicts also may encompass 'damages to the individual that result from federal, state or local wildlife legislation, regulations or policies that are designed to protect or conserve wildlife, public benefits and individual property rights' (Messmer 2000: 97). In view of this, it is convenient to categorise human-wildlife conflicts into two broad categories: (i) human impact on wildlife and *vice versa* and (ii) management-related conflicts.

Figure 9.1
System of human and wildlife movement cued by moisture availability in the plains



Generally, human-wildlife impacts vary with season and climate, depending on whether years are wet or dry.[1] Traditionally, there was a clear pattern of human and wildlife movements from and to wet areas cued by the availability of moisture. While the hills were the key areas for human habitation, movements to the plains were common. For people who were primarily cultivators, the plains offered a safety valve to alleviate increasing pressure on agricultural land in the hills. Under the onslaught of warring neighbours, particularly Maasai, these plain cultivators retreated to the safety of the hills. During the wet years, when rainfall was abundant, the cultivators moved to the plains and during dry or drought years they moved

[1] What may constitute a 'wet year' and a 'dry year' varies, of course, for each animal and plant species.

to the hills. Likewise, wild animals, particularly elephants, moved to wetter places on the flanks of the hills during dry seasons and dry years. In this way, a movement pattern evolved concerning rainfall, cultivators and wild animals. In years of abundant rainfall in the plains, both the peasant cultivators and plain animals were successful and encroached upon each other's territories only marginally. Conversely, with low rainfall, the cultivators whose yields were already threatened by drought were faced with the intrusion of plain animals in search of food and water. Wild animals were attracted to the more dependable supplies of water and green pasture on the flanks of the hills, in spite of the presence of human settlements. Figure 9.1 presents a conceptualisation of these movements.

In the following sections, we will first address the human impacts on wildlife. The negative human impacts on wildlife can be attributed mainly to the rapidly increasing need for land, food and income. The specific impacts result from competition for land, competition for pasture and water, and direct exploitation of wild animals and their habitats. In this chapter, we will also look at the legal aspects of human-wildlife conflicts and analyse the impacts of wildlife on humans.

Competition for land

Local communities compete with wildlife for space. Destruction of wildlife habitat, including protected forests, is considered as one of the major causes of biodiversity loss, both of flora and fauna. Encroachment on protected forest areas and movement of people from the densely populated Taita hills to the lowlands which are used by wildlife, clearly demonstrate this problem. As Cobb (1976) indicates, this results in compression of wildlife into limited areas. Coupled with fencing of private land or the park, it limits the movement of wild animals and causes other problems, such as reduced genetic variability through inbreeding (Baur *et al*. 1995), habitat degradation by wild animals (especially elephants) due to high densities, and behavioural changes (Njogu 1997).

The following sub-sections discuss the number of parcels of land owned by households, their sizes and their location with respect to the hills and the lowland. Land-use types and fencing are also discussed. Land-cover changes and degradation are discussed on the basis of the length of residence of a household in a specific area. The analysis of these factors indicates that competition for land between local communities and wildlife including forest conservation is a reality. This is because local communities tend to occupy and settle permanently on land originally utilised by wild animals or under natural vegetation cover in order to cater for an increasing population and their increasing needs. The local communities traditionally used these lands sparingly for grazing and as hunting grounds.

Land parcels under private tenure (family and individual tenure)

Private land ownership can be differentiated into family land and individual land.[2] About 24% (n = 169) of the households own one parcel, 37% two parcels, 25% three parcels and the other

[2] The difference between family and individual private land in the hills is mainly related to the time factor. In the hills, land has been passed on from generation to generation with or without change of title under statutory law. This has resulted in a size reduction each time the land is inherited by sons. Where it is not

14% own four parcels or more (Table 9.1). The highest number of parcels recorded is six, owned by about 2% of the households. About 53% of all residential parcels[3] of land are under family ownership, while the other 47% are under individual private ownership. For the second, third, fourth and fifth parcels, 55%, 50% 49% and 14%, respectively, are under individual ownership. All the sixth parcels of land are under family ownership.

Table 9.1
Parcels of land held per household (%; n = 169)

Number of land parcels	Specific areas: Kishushe/Maktau	Kasigau	Ngangao/Mbololo	Over
1	25.9	12.5	34.6	24.2
2	41.4	41.1	27.3	36.7
3	24.1	33.9	16.4	24.8
4	6.9	10.7	12.7	10.1
5	0.0	1.8	5.5	2.4
6	1.7	0.0	3.5	1.8
Total	100.0	100.0	100.0	100.00

People living in the highlands (Ngangao and Mbololo) tend to have one parcel of land, whereas people in the lowlands (Kishushe, Maktau and Kasigau) mostly have two parcels of land in the place where they reside. This land is generally in the category of individual land, while they own family land in the highlands where they came from. This indicates that inhabitants of the lowland moved from the hills, where they have claims over family land, particularly in case of deceased parents. Households with more than three parcels of land are generally from the hills, where comparatively well-to-do people reside. Some of these parcels are in the lowlands and may include shares in ranches. In general, land parcels in the hills are under family ownership, with people in the lowlands being part of these families. In the lowland, individuals rather than families own the parcels. However, based on Cramer's V symmetric measure, the correlation between the number of parcels of land held per household and location is weak (Table 9.2).

Table 9.2
Correlation between number of parcels of land held per household and location

		Value	Approx. sig.
Nominal by nominal	Phi	.325	.058
	Cramer's V	.230	.058
Number of valid cases		169	

a Not assuming the null hypothesis.
b Using the asymptotic standard error assuming the null hypothesis.

subdivided or too small to be shared or subdivided, but not registered, the residing sons or daughters do not own the land individually, but claim it as family land. Family ownership in this case is under customary law, as the title remains in the name of the original owner at the time of demarcation and registration. Non-resident heirs also claim ownership of family land.

[3] The residential parcel is the land where the owners reside on a permanent basis.

Size of parcels

On average, the size of the land parcels in both the hills and the lowlands is about 7.5 acres (3.4 ha) with an average household size of six persons (Table 9.3). If each member or heir[4] of the 53% land parcels currently under family ownership claimed his land, he would have about one acre (0.45 ha), on average. If land under family ownership with a size less than 5 acres (about 56% of the land) was subdivided among the heirs, each member's claim would be less than one acre. Under such ownership structures and present technological levels and production systems, the desire for more land is intense, the more so in cases in which family-related households own part of their land in the hills and part in the lowlands.

Table 9.3
Percentages of land size classes under private individual and family ownership

Size (acres)*	Parcels of land: 1st	2nd	3rd	4th	5th	6th	Overall
<3	29.6	41.4	53.7	41.7	50.0	66.7	47.2
3-5	26.6	27.3	19.4	12.5	33.3	33.3	25.4
6-8	20.7	21.1	14.9	25.0	16.7	-	16.4
9-11	8.9	4.7	4.5	12.5	-	-	5.1
12-14	3.6	0.8	3.0	-	-	-	1.2
15-17	2.9	0.8	1.5	-	-	-	0.9
18-20	2.9	2.3	1.5	8.3	-	-	2.5
21-23	-	-	-	-	-	-	-
24-26	1.8	0.8	-	-	-	-	0.4
27-30	1.2	-	-	-	-	-	0.2
>30	1.8	0.8	1.5	-	-	-	0.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

* 1 acre = 0,45 ha.

The location of land parcels

The first parcel of land is the residential area from where the location of the other parcels is described. In the lowlands, 81% of the second parcels are located within the residential area, while this percentage amounts to 65% for the hills. All the other parcels (the third, fourth, fifth and sixth for those who have them) are located elsewhere within the district. The residential area is regarded as the village or administrative sub-location.

Land-use type

Most land parcels are used for mixed farming, which includes crop farming and livestock keeping (Table 9.4). Of the residential parcels, 95% are used for mixed farming, 4% for grazing without any crop farming and 1% is destined for leasing. The residential parcel is typically used for settlement, with several houses making the homestead, a kraal for livestock and cropland.

[4] Amongst the Taita and many communities in Kenya, sons and not daughters inherit land.

Table 9.4
Percentage of land parcels under specific use

	Parcels of land						
Use	1st	2nd	3rd	4th	5th	6th	Overall
Mixed farming	95.3	89.1	94.0	95.8	85.7	66.7	87.8
Grazing	4.1	6.3	3.0	-	-	-	2.2
Fallow[5]	-	2.3	1.5	4.2	14.3	33.3	9.3
Lease	0.6	2.3	1.5	-	-	-	0.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Fencing to protect against wildlife

Of all parcels of land (n = 397), 44% are fenced. There are several reasons for fencing private land, guarding against the menace of wildlife being the main reason in both the lowlands and the hills.[6] Based on Phi and Cramer's V symmetric measure, the correlation between fencing and location (the lowlands or hills) is not very strong and tends to decrease from the first parcel to the sixth (Table 9.5). More residential parcels (46%) and second parcels (47%) of land are fenced than third (39%), fourth (29%), fifth (14%) and sixth parcels (none), respectively.

Table 9.5
Correlation between fencing and location of land parcel (lowland and hills)

		Parcels of land											
		1st		2nd		3rd		4th		5th		6th	
		Value	Approx. sig.	Value	Approx sig.	Value	Approx sig.	Value	Approx sig.	Value	Approx sig.	Value	Approx sig.
Nominal by nominal	Phi	0.472	.000	0.417	.000	0.336	.001	0.239	0.008	0.214	0.021	0.098	0.203
	Cramer's V	0.472	.000	0.417	.000	0.336	.001	0.239	0.008	0.214	0.021	0.098	0.203
Valid cases		169		169		169		169		169		169	

a Not assuming the null hypothesis.

b Using the asymptotic standard error assuming the null hypothesis.

Fence type

The main types of fence include barbed wire, branches and hedges. Others include the use of trenches to prevent wild animals from entering the farms, a combination of barbed wire and/or branches, and the planting of trees along the borders of the farms. Of the 44% of land parcels that are fenced, the dominant fence is mainly made of branches (Table 9.6). This is most common in the lowlands.

5 Fallow land in this analysis is also not used for grazing.

6 Other methods used to keep wild animals from the farms include use of scarecrows, dogs, bonfires and night vigilance.

Table 9.6
Types of fence (parcels of land; n = 397)

Parcels	1st	2nd	3rd	4th	5th	6th	Totals
Count							
With land	169	128	66	24	7	3	397
Not fenced	92	68	40	17	6	3	226
Barbed wire	6	3	1	0	0	0	10
Branches	54	47	22	6	1	0	130
Hedge	5	3	2	0	0	0	10
Other	12	7	1	1	0	0	21
Percentages							
Not fenced	54.4	53.1	60.6	70.8	85.7	100.0	56.9
Barbed wire	3.6	2.4	1.5	-	-	-	2.5
Branches	31.9	36.7	33.4	25.0	14.3	-	32.8
Hedge	3.0	2.3	3.0	-	-	-	2.5
Other[7]	7.1	5.5	1.5	4.2	-	-	5.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Land-cover changes and degradation

Land-cover change and degradation caused by local communities lead to loss of biodiversity. Burgi and Rusel (2001) propose an integrative approach to studying landscape changes. This approach attempts to integrate methods and knowledge from history as well as ecology to study landscape dynamics. The limitation of this method is that there is a risk of recording relative degradation and not absolute. However, in general, comparing the present situation of farming land and its surroundings in Taita with the situation when households started using the farms and surrounding areas indicates several changes. We made this comparison taking people's length of stay in a particular locality as a starting point. About 73% of the interviewed households (n = 169) have lived in their current site of residence for over 21 years. The mean length of stay is 38 years, with a minimum length of stay of 1 year and a maximum of 74 years. Table 9.7 summarises some of the changes that have taken place in the last 40 years.

Table 9.7
Evaluation of land and resource availability based on length of stay (%; n = 169)

Changes	Not applicable	Increasing	Decreasing	No change	Total
Distance to collect firewood	2.4	74.6	5.9	17.2	100.0
Natural plant and animal diversity	4.1	37.3	43.2	15.4	100.0
Crop yield	1.8	8.9	76.9	12.4	100.0
Forage availability	2.9	13.0	62.7	21.3	100.0
Spring water	12.4	1.8	60.4	25.4	100.0
Unpalatable plant species	7.7	32.5	21.9	37.9	100.0
Dustbowls/bare land	10.6	53.9	17.2	18.3	100.0

[7] Other kinds of fencing include a combination of any two or more and trenches. However, trenches are rare and are found in the lowlands where they are used mainly to keep off elephants from the farms.

Generally, the responses indicate a change from a natural landscape to a human-dominated one in which the natural vegetation is replaced with agricultural crops and settlements, and in which wild animals are replaced with livestock. In some cases, all natural vegetation on the land parcels has been cleared for agriculture, while in other cases certain species are removed selectively for specific uses while others are removed through overgrazing. Decreasing spring water may indicate the effects of human activities on hydrological cycles, particularly through the clearing of hill forests. Increasing distance from the sources of fuel wood indicates overuse without replacement and may motivate forest and park encroachment. Decreasing plant and wildlife diversity has also been noted. Indeed, habitat destruction and fragmentation constitute the major causes of loss of both plant and wildlife diversity.

We may conclude that there is intense competition for land among the local people and between them and the wildlife. This leads to landscape alteration and subsequent loss of biodiversity and depreciation of natural resources and environmental services. This is depicted in the analysis of land owned by local communities, which includes the number of parcels owned per household, a comparison between the lowland and the hills in terms of number of parcels owned per household, land parcels under family and individual ownership, sizes of parcels, location of non-residential parcels and fencing. The relationship between the hills and lowlands in terms of land indicates a movement to the lowlands where land is considered available. Much of this land has been subdivided now and none is free for occupation. Meanwhile, there is pressure to subdivide the ranches that are under group ownership. There are conflicts over ranches the ownership of which is not clear, such as Isangaiwishi, or the ownership of which is contested, such as Ndara ranch. This is mainly because of the need for land. There are also conflicts between owners of sisal estates and squatters who demand part of the estates. Conflicts are also rife as local people encroach on forest reserves and the national park, while others press for their excision.[8] All these serve as pointers to the need for more land and the subsequent competition and conflicts over land that may be construed as ownerless or unjustifiably owned.

Competition for pasture and water

In both the hills and the lowland, about 80% of households interviewed had a desire to graze livestock in the park, forest reserves and the ranches. The main reason is that current grazing land is inadequate. Local communities compete with wildlife for water and pasture for their livestock. About 86% of the households in the lowlands and 84% of the households in the hills keep livestock. In the lowlands, about 96% and 90% graze livestock in nearby bushes and deep in the plains, respectively. Only about 10% practice zero grazing. In the hills, about 90% of households practice zero grazing, 4% graze in nearby bushes and 10% maintain their livestock in the lowlands. There is overlap in grazing areas in both the lowlands and hills. Certainly, grazing is not restricted to one place; livestock that are grazed in nearby bushes are

[8] The Voi Member of Parliament, Basil Mwakiringo (1997-2002) indicated that he was conducting research to find out which parts of the Tsavo National Park could be excised for community wildlife management (East Africa Standard, Saturday, 4 May 2002). Although this may be politically motivated, it is an indication that the local people have a desire for the land or want to have access to and benefits from the park.

also grazed deep in the plains in a systematic pattern based on seasons and, hence, availability of pasture. There is a very strong correlation between grazing areas and household location (Table 9.8). In the hills there is less land left free for grazing, hence zero grazing is more prevalent, followed by maintaining livestock in the lowlands. Grazing in the forest glades may be common, but the respondents would not be willing to admit it, because it is illegal. However, at least the 4% of grazing in nearby bushes may be part of those grazing in the forests glades and bushes. Both in the hills and the lowlands about 65% of the respondents water their livestock in communal watering places, while 35% water within their homestead. Communal watering places include dams, streams and constructed troughs.

Table 9.8
Correlation between grazing places and location of households (lowlands and hills)

		Value	Approx. sig.
Nominal by nominal	Phi	.727	.000
	Cramer's V	.727	.000
Number of valid cases		169	

a Not assuming the null hypothesis.
b Using the asymptotic standard error assuming the null hypothesis.

Generally, grazing land is not adequate, particularly because large tracts of land belong to very few individuals. The national park and forest reserves 'belong' to the government and ranches and sisal estates belong to a few individuals. These lands are not available to the local communities. Other major reasons for inadequate grazing land include increasing human population, farmland expansion and pressure on ranches, mainly due to overgrazing by both livestock and wildlife. Climatic factors also play an important role. During droughts, when pasture and water resources are scarce, competition becomes intense.

Numbers of livestock
People in the lowland keep more livestock than people in the hills. The mean TLU per household is 9.17 in the lowland and 3.7 in the hills (Table 9.9). Livestock keeping concerns mainly the four main domestic animals: cattle, goats, sheep and donkeys. About 75% and 78% of households (n = 169) in the lowland and the hills, respectively, keep cattle. However, about 64% in the hills keep between 1-5 animals, while only 30% in the lowland keep the same number of cattle. In the lowlands, 15% of all households have more than 20 head of cattle, while in the hills this is only 5%. About 60% of the households in the lowland keep goats, while only 20% in the hills keep them. The same trend applies to sheep and donkeys, as Table 9.9 indicates.

Direct exploitation of wildlife

Direct exploitation of wild animal species and forest resources and other activities are prohibited in areas protected for biodiversity conservation and constitute an important impact

Table 9.9
Numbers of households keeping livestock (%) and TLU per household (lowlands and hills)

No. of livestock (class)	Total (livestock)		Percentage of interviewee keeping specific number livestock: Cattle		Goats		Sheep		Donkeys	
	Lls	Uls	Lls	Uls	Lls	Uls	Lls	Uls	Lls	Uls
0	14.0	16.5	25.4	21.9	38.6	80.0	78.9	67.3	85.1	90.9
1-5	14.9	56.4	30.7	63.7	21.9	14.6	14.0	29.1	14.9	9.1
6-10	21.9	14.5	16.7	3.6	8.8		1.8			
11-15	14.0	1.8	7.1	3.6	14.9	1.8	3.5	3.6		
16-20	4.4	1.8	5.3	1.8	5.3	1.8	0.9			
21-25	3.5	1.8	2.6		3.5	1.8	0.9			
26-30	1.8		0.9		0.9					
31-40	5.3		2.6	1.8	3.5					
41-50	6.1	3.6	4.4	3.6	1.8					
51-60	7.0	1.8	1.7		0.9					
61-70	4.4	0.0	1.7							
71-80		1.8	0.9							
81-90	1.8									
>101	0.9									
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total No.	2,366	398	1,309	258	870	75	140	55	41	16
Mean			11.5	4.7	7.6	1.3	1.2	1.0	0.4	0.3
TLU	9.17	3.70	8.05	3.29	0.76	0.13	0.12	0.10	0.24	0.18
% of hholds keeping				75.7		47.9		24.9		13.0

Lls = Lowlands; Ups=Uplands ;Tropical Livestock Unit (TLU) for cattle= 0.7; donkey =0.6; Sheep/Goats = 0.1, Peden (1984 Pg 5)

of humans on biodiversity. In this section, we discuss the importance of direct wildlife exploitation and the same will be done with respect to the exploitation of forest resources. We also discuss the legal basis of wildlife and forest biodiversity-related crimes and the difficulty of enforcing wildlife legislation. For the latter purpose, we analyse court cases of wildlife and forest biodiversity-related crimes.

Wildlife exploitation

Direct utilisation that adversely affects wildlife may be either legal or illegal. Legal utilisation is harmful only if poorly managed, as it would lead to over-utilisation. Mainly illegal utilisation impacts negatively on the wildlife population and on biodiversity in general. In Kenya, all wildlife utilisation is illegal since the 1977 ban on hunting and/or trading in wildlife and wildlife products.[9] However, some utilisation is being carried out on a pilot basis under the Community Wildlife Service (CWS) of KWS. Under the current management system, all wild animals are 'state property', irrespective of whose land they occupy at a certain moment.

[9] Hunting was banned through Legal Notice No. 120 of 20 May 1977, while the trade in wildlife and wildlife products was banned through Parliament Act No. 5 of 1978, Legal Notice No. 181 of 21 August 1979 and a presidential directive prohibiting all hunting and capture of wildlife in 1984.

Wildlife poaching is considered as one of the major causes of the decrease and selective extinction of wildlife species. Poaching is not only for internationally tradable products such as ivory, rhino horn, game meat and various kinds of trophies, but also for local consumption. A lot of research has been done on international trade in wildlife products under CITES (Hart 2000; Anstey, 1991). However, less research has been done on poaching for subsistence and local trade, particularly of bush meat. The importance of bush meat to community development in the West and Central African region is well documented, and the role of the bush meat trade in generating cash incomes to many traders is now regarded as an important contribution to the Gross Domestic Product and national revenues (Anstey 1991; King 1994; Hart 2000; Fa 2000). In the East and Southern Africa region, including Kenya, the importance of bush meat to community development and national revenues is not well documented. The prevailing perception of bush meat is that it is being used purely for subsistence and that bush meat hunting is done on a limited scale by a few traditional societies only. Lack of documentation is due to the illegal nature surrounding the utilisation and trade of bush meat. Communities are well aware of the penalties for bush meat use and are consequently averse to revealing information on the activity to outsiders. However, on the basis of the court cases analysis, there is clear evidence of possible intense hunting and trading of bush meat in Taita. This may have been overlooked, yet may constitute one of the most serious insidious contributions to the loss of wildlife. Indeed, other than for food, local communities who compete with wild animals for land, pasture and water for their domestic stocks have strong incentives to kill them (Kreuter and Simmons 1995: 148).

Research conducted by TRAFFIC[10] (1998: 22) indicates that in rural areas such as Kitui District in Kenya, about 14.1 kg of bush meat per household is consumed by 80% of the households each month, representing the bulk of all meat protein consumed, with domestic meat playing a reduced role in meeting household protein requirements. With increasing urbanisation, a key trend is a continuing reliance on affordable sources of bush meat protein. Some of these in Kitui District are obtained from areas close to Tsavo East National Park. Discussions with the management of the Taita Hills Sanctuary[11] indicate that poaching of antelopes and giraffe for trade in game meat is very common.

Forest exploitation as source of destruction of wildlife habitats

The legal and illegal harvesting of forest resources, in particular, wood, to cater for an ever-increasing demand for wood fuel and construction wood, has seriously affected the forests in the hills and bushes in the lowlands. Local communities harvest woody vegetation mainly for household energy and construction. Some of the forest resources, notably wood, are obtained illegally from protected areas or other peoples' land. In Taita, firewood caters for 85.8% of household energy, charcoal for 10.0%, cow dung for 1.8%, while kerosene, LPG and

[10] TRAFFIC, the wildlife trade monitoring network, works to ensure that trade in wild plants and animals is not a threat to the conservation of nature. TRAFFIC works in cooperation with the Secretariat of the Convention on International Trade in Endangered Species of Fauna and Flora (CITES) and is a joint programme of WWF and the IUCN.

[11] Interviews with Dr Tim Allen-Rowlandson (March 2000) and Philip (June 1999).

electricity cater for 0.6% each. Firewood and charcoal making are the major reasons for cutting trees. Exploitation of woody vegetation for charcoal is overwhelming in the Kasigau/Rukinga area. However, most of the charcoal made is used elsewhere, particularly in Mombasa and Nairobi. There are also allegations that some is even exported to Saudi Arabia. This area is under threat from poaching, charcoal burning and uncontrolled settlements. The area is one of the remaining areas in Taita that has remained natural and serves as a wildlife migratory route between Tsavo East and West.

Although wood fuel harvesting and charcoal burning (Plate 2) constitute a major interest in protected wildlife and forest areas, other forest and bush resources are being exploited as well. These include forest game meat and plant products that are obtained from the Taita hills forest (Mwangombe and Mwanyumba 1999). In Mbololo, resin is collected from trees (*Pinus patula,* Schiede ex Schltdl. and Cham) both in the protected forest area and on private land (Plate 3). This is one of the sustainable forms of forest resource utilisation, as it does not involve the cutting of trees.

Wildlife and forest biodiversity-related crimes

In this section, we will analyse wildlife and forest biodiversity-related crimes in Taita. The crimes refer to the contravention of written laws on protected wildlife and forest conservation areas and the illegal use of wild animals which are not confined to protected areas. In Taita, protected areas refer mainly to the national park and the forest reserves, but also include private land such as wildlife sanctuaries.

Kind of offences against wildlife conservation: Wildlife Act Cap. 376

Crimes against wildlife conservation and their respective punishments are dealt with under Section 13 of the Wildlife (Conservation and Management) Act Cap. 376.[12] Generally, the whole Wildlife Act is about 'rules'. It is divided into nine parts. After the introductory Part I, Part II is about administration and Part III about the national park, national reserves and local sanctuaries. Parts IV and V deal with control of hunting, trophies and live animals through licensing. Part VI is on enforcement, while Part VII is on the wildlife fund and Part IX about miscellaneous issues. Since the prohibition of all kinds of hunting, the operation of Parts IV and V on licensing has become limited. However, game cropping, a form of hunting, has been going on in several private ranches on a pilot basis. Although the ban on hunting has not yet been lifted, more and more ranches are currently applying for hunting licences, mainly for game meat.[13]

Generally, crimes committed against wildlife biodiversity fall under Part III, comprising Sections 6 to 20 and, in particular, Sections 10 to 17, which state what should not be done in protected wildlife areas. These regulations include restrictions on prospecting and mining

[12] RoK (1977), Laws of Kenya, the Wildlife (Conservation and Management) Act, Chapter 376, revised edition 1985, Government Printers, Nairobi. A supplement was issued when the KWS was created in 1990.

[13] Informal discussions on various occasions with KWS staff from various departments (licensing, partnerships, biodiversity and research) indicate an increase in the number of applications for hunting licences.

(Section 10), commercial filmmaking (Section 11) and flying aircraft in national parks (Section 12). General offences in national parks are listed in Section 13, while Section 14 prohibits following animals into national parks. Section 15 of the Wildlife Act is on the gazetting of protection areas, which refers to areas adjacent to a national park, national reserve or local sanctuary. In general, all rules applied to the national park also apply to national reserves, local sanctuaries and protection areas. However, when such protection areas are gazetted, the manner or extent to which a regulation or restriction applies should be specified for actions that are prohibited/restricted or regulated. Section 16 deals with national park regulations, while Section 17 deals with impounding of livestock found in a national park. Section 13, supported by sections dealing with hunting or possessing game trophy or live animals, irrespective of the place where they occur (inside or outside national park), has often been evoked to judge offenders (see Table 9.10).

Kinds of offences against forest conservation: Forest Act Cap. 385[14]

Section 8 of the current Forest Act Cap 385 (RoK 1982) contains offences against forest conservation. In comparison with the Wildlife Act, the Forest Act is simple, shorter and not divided into parts. It has 15 sections, of which, Sections 6 to 14 generally deal with licensing, prohibitions/offences and penalties. Sections 1 to 5 are on administration in general, while Section 15 deals with rules that may be set by the Minister in charge of forestry.

Section 7 states that: *'*the Director of Forestry or any person authorised by him in that behalf may issue licenses for all or any of the purposes referred in Subsection (1) of Section 8…with conditions and subject to payment of such fees or royalties as may be prescribed; but no license shall be issued for any purpose in respect of which a license is required under the Wildlife (Cap. 376) or Fisheries Acts (Cap. 378)*'*.

Section 8 deals with various prohibitions. Subsection 8(1a) establishes that in the forest area or Central Forest it is forbidden to:

(i) fell, cut, take, burn, injure or remove any forest product;
(ii) be or remain therein between the hours of 9 p.m. and 6 a.m., unless one is using a recognised road or footpath or is in occupation of a building authorised by the Director of Forestry;
(iii) erect any building or cattle enclosure;
(iv) set fire to or assist any person to set fire to any grass or undergrowth or any forest produce;
(v) smoke, where smoking is by notice prohibited, or kindle, carry or throw down any fire, match or other lighted material;
(vi) depasture, or allow any cattle to be therein;
(vii) clear, cultivate or break up land for cultivation or for any other purpose;
(viii) capture or kill any animal, set or be in possession of any trap, snare, gin or net, or dig any pit, for the purpose of catching any animal, or use or be in possession of any poison or poisoned weapon;
(ix) construct any road or path;
(x) enter any part thereof which may be closed to any person;
(xi) collect any honey or bee wax, hang receptacles to collect honey; or
(xii) damage, alter, shift, remove or interfere in any way whatsoever with any beacon, boundary mark, fence, notice or notice board.

[14] A new Forest Bill 2000 has been prepared waiting to be discussed in parliament.

Table 9.10
Offences against wildlife

Section	Offence (with respect to national park)	Punishment (not >or <)[15] Fine (Ksh.)	Imprisonment (months)
13 (1)	Hunting in national park – guilty of forfeiture offence	5,000 - 20,000	6 – 36
13 (2)	Convey into national park, or being within the area thereof, is in possession of any weapon, ammunition, explosives, trap or poison – guilty of forfeiture offence	5,000 - 20,000	6 – 36
13 (3)			
(a)	Enter or reside in national park		
(b)	Cut, injure or set fire on vegetation		
(c)	Collect or attempt to collect honey/bee wax		
(d)	Wilfully damage any object of geological, prehistoric, archaeological, historic, marine or other scientific interest or knowingly remove or attempt to remove such object or portion		
(e)	Without lawful excuse in possession of any animal or trophy within or without a national park		
(f)	Knowingly introduce animal or domestic animal or vegetation into a national park		
(g)	Deliberately disturb or stampedes any animal in a national park		
(h)	Wilfully damage any structure lawfully placed in national park		
(i)	Clear, cultivates or breaks up for cultivation any land in national park; or	Not exceeding	Not exceeding
(j)	Catches or attempt to catch any fish in national park	10,000	12 or both
56(1)	Guilty of offence under this Act for which no other penalty is expressly provided		
(a)	Offence against protected animal with respect to Part I of first schedule…	Not exceeding 40,000	Not exceeding 120 or both
(b)	Offence against protected animal with respect to Part II of first schedule…	Not exceeding 20,000	Not exceeding 60 or both
(c)	Forfeiture offence not included in paragraph (a) or (b)	Not exceeding 15,000	Not exceeding 36 or both
(d)	In any other case	Not exceeding 2,000	Not exceeding 6 or both
56(2)	When case involves more than one animal or trophy	Additional punishment in respect of each animal or trophy after the first of a fine not exceeding 6,000 or half of the fine prescribed in this Act for the offence, whichever is the less	
57	When a corporation or firm is the offender, the director, secretary or officer of the corporation is liable to be prosecuted, tried, convicted and punished for that offence		

[15] This may depend on the Criminal Procedure Code Cap 75, which deals with 'sentence, which subordinate Courts may pass.'

Subsection 8(1b) establishes that on unalienated government land it is forbidden to:

(i) fell, cut, take, burn, injure or remove any forest product;
(ii) construct any road or path; or
(iii) light any fire.
(iv)

Subsection 8(2) further states that 'Any cattle found in any forest area or in Central Forest shall be deemed to be there under the authority of the owner thereof unless the owner thereof proves the contrary, and under the authority of the person, if any, actually in charge of the cattle.' Section 9 of the Forest Act deals with counterfeiting or unlawfully affixing marks etc., while Section 10 deals with compounding offences. In this case, Subsection 10(1) determines that a Forest Officer empowered in that behalf by the Minister, may with the consent of the Director of Forestry accept a sum of money from a person who has committed an offence under the Forest Act, by way of compensation for the offence. If there is any forest produce involved in the crime, this should be surrendered as well. The compensation should not exceed five times the value of the estimated damage or, if the value cannot be estimated, be Ksh. 200 for each offence. Subsection 10(2) lays down that compensation applies only when a person reasonably suspected of having committed an offence has expressed his consent to the offence being dealt with under this section. Subsection 10(3) establishes that in any proceeding against a person for an offence under this Act, there shall be good defence if the person proves that he has compounded the offence under this section.

Section 11 deals with search and arrest of offenders, while Section 12 deals with rewards to informers of crime. This reward should not exceed one half of any fine imposed to the offender, on the condition that the informer is not an employee of the government. Section 13 presumes that any person found with forest produce has obtained it from forest areas or a Central Forest, unless the contrary is proved. Section 14 deals with penalties. Subsection 14(1) describes the penalty to offenders who fail to comply with the provisions of the Forest Act or the rules set under licensing, who fail to comply with lawful requirements of Section 11 or who obstruct a person in execution of his powers or duties under this Act or any other rule. A person found guilty is liable to a fine not exceeding Ksh. 3,000 and/or to imprisonment for a term not exceeding 6 months and to the forfeiture of his licence. Subsection 14(2) describes the compensation which the court may ask the offender (in addition to the penalties under Subsection 14(1)), to pay for offences whereby forest produce has been damaged, injured or removed. Subsection 14(3) refers to cases in which the offender has cultivated or erected a structure in a forest area or Central Forest and lays down that this person may be ordered to remove such structure within a specified period, after failure to which such structure becomes property of the government.

The enforcement of the Wildlife and Forest Acts

The Wildlife Act, unlike the Forest Act, has Part VI dealing with enforcement. However, in general, the enforcement of these two Acts depends mainly on the institutions charged with the management of the respective resources. Both the Kenya Wildlife Service and the Forest Department have Game Rangers and Forest Rangers, respectively, to patrol and ensure that the respective laws are observed. In case of a crime, the offenders are arrested and handed over to the police. It is clear that the Wildlife (Conservation and Management) Act is more

comprehensive and elaborate than the Forest Act, which is not clear, and hence difficult to enforce. The managing agencies, KWS and the Forest Department are also different in nature. KWS is a parastatal and KWS staff is more motivated than the staff of the Forest Department, which lacks resources and a strong and clear Act. Indeed, it seems that the Forest Act is subordinate to the Wildlife (Conservation and Management) Act.

Court cases analysis

We visited Voi Court in February 2000 and held interviews with the Court Executive.[16] We randomly selected five years (1980, 1986, 1987, 1988 and 1999) in the period between 1980 and 2000 to analyse the kind of crimes committed in relation to wildlife and forest conservation. For the five years, all the biodiversity-related cases fell under the Wildlife Act. In these five years, the percentage of wildlife-related cases compared to the total number of cases amounted to 4%, 2.6%, 2.9%, 4.7%, 2.8% and 3.4%, respectively (Table 9.11).

Table 9.11
Frequency of crimes related to wildlife conservation in Taita (1980, 1986, 1987, 1988 and 1999).

Crime committed	Count Gender		Total Count		%
Directly related to biodiversity	♂	♀	Total	Average	
Trespass	246	23	269	54	32.2
Grazing in the park	109	9	118	24	14.1
Game meat and bird	82	11	93	19	11.1
Weapon	79	8	87	17	10.4
Trophy	58	5	63	13	7.5
Cutting trees and collection of firewood	42	15	57	11	6.8
Possessing or setting snares	49	4	53	11	6.4
Setting fire	20	3	23	5	2.8
Honey collection	13	2	15	3	1.8
Damaging geographical feature	4	2	6	1	0.7
Being in the park at night	2	0	2	0	0.2
Subtotal	704	82	786	158	94.3
Indirectly related to biodiversity					
Alien	30	2	32		3.8
Possession of drugs	8	2	10		1.2
Charm and witchcraft	0	2	2		0.2
Possession of unaccustomed goods	2	0	2		0.2
Possession of minerals	0	1	1		0.1
Drunk and disorderly	1	0	1		0.1
Vagrant	1	0	1		0.1
Subtotal			49		5.7
Total			835		100.0

[16] Mr Mwakio (Court Executive) was interviewed (on 14 Feb 2000). Records of court cases related to biodiversity conservation were obtained from the Occurrence Books (OB).

There are two sets of crimes: those directly related to wildlife conservation (94.3%) and those, which are not directly related (5.7%) but committed together with the directly related ones (Table 9.11). These include being alien, the possession of drugs, the use of charms and witchcraft, trading unaccustomed goods and minerals and drunk and vagrant behaviour.

The most common crime is trespass, catering for 32.2 % of the total cases and 34.2% of the cases directly related to wildlife conservation. This is to be expected, as most of the other crimes are not likely to be committed without entering into the park. However, this is not necessarily the case, because all wildlife, irrespective of location, belongs to the government and is managed through the Wildlife Act. For instance, though the court records do not clearly state where specific convicts were arrested, it is possible that some of them were arrested outside the park. This may be the case for people arrested with game meat, game birds or snares and those in possession of game trophies. Setting fire to the vegetation of the park may also not necessarily imply being in the park, apart from situations in which people start fires to harvest honey in the park, using fire to smoke out the bees. Others, such as tour drivers and tourists, may be in the park while making fire for any other use. Another source of fire may be the neighbourhood from which it spreads into the park. Driving or being in the park at night is a crime by itself and may or may not necessarily imply trespass, particularly for tourists who have not paid to be in the park for a night at the camp sites or lodges. Driving in the park at night is prohibited in any case.

Illegal grazing in the park accounts for 14.1% of all cases. This is mainly done by pastoralists[17] and is not clearly defined in law, especially in Tsavo National Park, where some grazing is allowed during dry seasons. Being in possession of game meat or game birds or a trophy accounts for 11.1% and 7.5 % of all cases, respectively, while being in possession of a weapon and possessing or setting snares accounts for 10.4% and 6.3%, respectively. To obtain game meat or trophy, weapons, snares or traps are used. However, there is a difference between hunting for trophy and hunting for game meat. Hunters for game meat are likely to use snares and rudimentary weapons, particularly bows and arrows, while trophy hunters are likely to use modern weapons like firearms and ammunition. The court case records do not specify what weapons were used, except when firearms and ammunitions are involved. During the five years, only two cases of firearms and ammunition were recorded, involving seven people (all males and foreigners)[18] who had not been convicted by February 2000, when the fieldwork for this study was being conducted.

The kind of animals or birds hunted for meat or trophies are not specified in the occurrence book. However, the game animals commonly hunted for meat include all types of antelopes, buffaloes and giraffes, while for birds it concerns mainly fowls. For game trophies, elephant tusks and rhinoceros horns are the most valued and constitute the main trophies for the five years analysed. This could be the case in the 1980s before the creation of KWS and in 1998-

[17] It is worth noting that the pastoralists in this case do not exclude the Taita people, who are predominantly crop farmers. The Taita people keep livestock in the lowland and the herders are mainly employees from pastoral communities, particularly Maasai. There are also people, predominantly Maasai, who graze their own cattle in the lowlands, particularly on the western side of the Tsavo West, neighbouring Kajiado District.

[18] Case number 912/99 and 1054/99.

99 when the morale of KWS staff is said to have plummeted.[19] There are also other parts of game that constitute trophies such as a skull bearing horns, skin, hooves and teeth. For instance, in one of the two cases of charms and witchcraft (0.2% of all cases), warthog teeth constituted the charm and witchcraft paraphernalia. Historically in the Taita culture, Taita people are known to have used charms and witchcraft to protect themselves and their property from wildlife and this case stands out as evidence in contemporary Taita.

Cutting of trees, damaging vegetation and collection of firewood from the park accounts for 6.8% of all cases. Shortage of construction timber is a major problem in the lowlands, as most large trees and shrubs have been depleted in land outside the protected areas. Shortage of firewood may not be a serious problem, as dwarf trees and shrubs are available in many parts of the lowlands, but the most preferred species, particularly acacia trees, are not available, due to overuse. There is one case in which off-road driving resulted in the destruction of vegetation. Other than damaging vegetation, there are also cases of damaging geographical features in the park, which accounted for 0.7% of total wildlife conservation-related cases. In this case, geographical features included mainly the landscape and landmarks erected for directing tourists along the roads.

In the hills, cutting of trees in the forest is a serious threat to forest conservation. In the years for which the analysis of court cases was done, however, the Forest Department brought no cases to court under the Forest Act. This observation indicates the weakness in enforcing the existing Forest Act, compared to the Wildlife Act. Since the foresters and rangers are allowed by the Forest Act to take compensation for any forest product that is harvested without a permit, it is likely that people were caught and paid compensation. However, such money may not have been accounted for and is likely not to have been deposited with the Forest Department. The Forest Act thus gives leeway for corruption and this is indeed the main cause of forest loss and degradation in Kenya.

Numbers and nuisance of wild animals

Before analysing the impact of wildlife on humans, we will first present the results of interviews with households about the number of animals sighted, trends in numbers and perceived nuisances (Tables 9.12-9.14). ‘Animals sighted’ refers to any wild animal sighted or whose presence is evident within the residential areas or farms and is a nuisance to the households. The animals sighted were grouped into three categories, herbivores, carnivores and others. Trend in numbers indicates whether the animals sighted are increasing, decreasing or have not changed in number over the last 5 to 10 years. Nuisance refers to damages animals cause to humans.

[19] Loefler Imre (‘Circling Vultures’, Swara, 1998 Vol. 21: 2) indicates that cases of poaching have been on the rise in the country since Dr Leakey resigned as the director of KWS. This is now evident. During the first week of July 2002, heavily armed Somali poachers killed two elephants and six ostriches in Ijara District, North Eastern Province. In the same week, an elephant was killed in a private ranch in Laikipia District. The tusks were removed from the carcass. In April 2002, 15 elephants were killed in the Samburu Game Reserve, while ten others were gunned down in Tsavo National Park.

Herbivores

The herbivores sighted within the residential areas include elephants, buffaloes, elands, various gazelles, zebras, wild pigs and dik diks. The elephants are the most sighted, especially in Kasigau area. About 91% of the households have sighted them within their residential areas (Table 9.12). They are not sighted in Ngangao area, but during dry seasons or droughts they are sighted in the Mbololo area on the flanks of the hill. In terms of numbers, households in Kasigau indicated that the number of elephants has been increasing in the last 5 to 10 years and that they are very troublesome. In Kishushe and Maktau areas, 39% of the households indicate a decrease and 28% an increase. This observation in Kishushe and Maktau relates to the 30 km Bura-Maktau electric fence, which has to some extent kept elephants away from the farms. However, it was noted that the number of elephants that are able to go round the fence is increasing as they discover new routes.

Table 9.12
Herbivores sighted, trends in number and nuisance (%)

	Elephants			Buffaloes			Elands			Gazelles			Zebras			Wild pigs		
	K/M	Kas	N/M	K/M	Kas	N/M	K/M	Kas	N/M	K/M	Kas	N/M	K/M	Kas	N/M	K/M	Kas	N/M
Frequency of sighting herbivores																		
Sighted	79.3	91.1	23.6	19.0	3.6	7.3	-	60.7	-	39.7	28.6	5.5	19.0	-	-	32.7	85.7	41.8
Very frequent	20.7	64.3	10.9	3.5	1.8	3.6	-	19.7	-	20.7	8.9	-	3.5	-	-	25.9	69.6	27.3
Moderate	56.9	26.8	3.6	10.3	1.8	1.8	-	41.1	-	19.0	17.9	5.5	13.8	-	-	5.2	16.1	10.9
Rare	1.7	-	9.1	5.2	-	1.8	-	-	-	-	1.8	-	1.7	-	-	1.7	-	3.6
Number sighted																		
Increasing	27.6	69.6	18.2	3.5	3.6	3.6	-	25.0	-	15.5	16.1	1.8	1.7	-	-	22.4	71.4	30.9
Decreasing	12.1	17.9	3.6	3.5	-	3.6	-	21.4	-	8.6	8.9	1.8	-	-	-	5.2	10.7	1.8
No change	39.7	3.6	1.8	12.1	-	-	-	14.3	-	15.5	3.6	1.8	17.2	-	-	5.2	3.6	9.1
Troublesome																		
Very	41.4	82.1	18.2	1.7	1.8	5.5	100	39.3	100	1.7	14.3	-	1.7	-	-	10.3	80.4	30.9
Moderate	27.6	8.9	1.8	12.1	1.8	1.8	-	28.6	-	15.5	14.3	5.5	13.8	-	-	6.9	5.4	5.5
Slightly	10.3	-	3.6	5.7	-	-	-	32.1	-	22.4	-	-	3.5	-	-	15.5	-	5.5

Key: K/M = Kishushe/Maktau; Kas = Kasigau; N/M = Ngangao/Mbololo.

Buffaloes are mainly sighted within Kishushe and Maktau areas, with 19% of the households indicating that they had sighted them within the residential areas. They are rarely sighted in the Kasigau, Ngangao and Mbololo areas. In Kasigau, households indicate that their number has not changed over the last 5-10 years and that they are moderately troublesome.

The elands are sighted only in the Kasigau area, with 61% of the interviewed households indicating having sighted them within the residential areas. Most households (32%) indicate that elands are moderately troublesome and 29% indicate that they are very troublesome. Their number is generally stable, as 25% of the households indicate an increase, 21% a decrease and 14% indicate no change.

Zebras are sighted in Kishushe and Maktau areas. They are frequently sighted and their numbers are stable and they are moderately troublesome. Wild pigs are sighted in all areas, but mostly in Kasigau (86%), and to a lesser extent in Ngangao and Mbololo areas (41%) and Kishushe and Maktau areas (33%). They are frequently sighted and their number is increasing. They are generally very troublesome, especially in Kasigau.

Gazelles are mainly sighted in the lowland, mostly in Kishushe, Maktau and Kasigau areas. In the forest areas of Ngangao and Mbololo, duikers are sighted. In Kasigau, the number of gazelles is increasing and Kishushe and Maktau areas their number is stable. In all areas, the gazelles generally are slightly troublesome. Dik diks are frequently sighted in the lowlands, their number is generally stable and they are regarded as slightly troublesome.

Carnivores

The main carnivores in descending order of frequency of being sighted (Table 9.13) are lions, hyenas, leopards, wild dogs, cheetah and jackals. The lions are the most frequently sighted, especially in Kasigau, where 88% of the households indicate having sighted them within the residential areas. For Kishushe and Maktau, 67% of the households, and in Ngangao and Mbololo 11% of the households have sighted them. Kasigau households indicate that the number of lions is increasing, while it is stable in Kishushe and Maktau areas. They are generally very troublesome. Hyenas are also common, with 80% of the households interviewed in Kasigau, 20% in Kishushe and Maktau areas and 37% in Ngangao and Mbololo areas having sighted them. Their number is generally increasing in all areas. They are also considered as very troublesome. Leopards have been sighted mostly in Kasigau, but rarely. Their number is generally stable and they are moderately to slightly troublesome. Wild dogs are rare. About 5% households indicate having sighted them, particularly in Kasigau area. Their number seems to be stable or decreasing. Wild dogs can be very troublesome. Cheetahs are also rare and are sighted mostly in Kasigau with 7% of the households indicating having sighted them. Jackals are the most rare among the carnivores and are mostly sighted in Kishushe and Maktau areas with 1.7% of the households indicating having sighted them.

Other animals

Among other troublesome animals, baboons, monkeys, porcupines and fowls are the most important. Baboons are the most troublesome. They are sighted in all areas. In Kasigau 84% of the households, indicate having sighted them within the residential areas, while these percentages amount to 65% in Ngangao and Mbololo areas and 50% in Kishushe and Mbololo areas (Table 9.14). Their numbers are generally increasing and they are considered very troublesome. The monkeys are also considered very troublesome and are mostly sighted in Ngangao and Mbololo areas (93%) and Kasigau (61%), and to a lesser extent in Kishushe and Maktau areas (28%). Their number is generally thought to be increasing. The porcupines are also considered as a menace, particularly in the Ngangao and Mbololo areas, where about 22% of the households indicate sighting them. In the Kishushe and Maktau areas 10% of the households and in Kasigau 7% of the households indicate sighting porcupines. They are moderately to slightly troublesome in the Kasigau, Kishushe and Maktau areas, but very troublesome in the Ngangao and Mbololo areas, where they are mostly sighted.

Table 9.13
Carnivores sighted, trends in number and nuisance (%)

	Lions			Hyenas			Leopard			Wild dogs			Cheetahs			Jackals		
	K/M	Kas	N/M	K/M	Kas	N/M	K/M	Kas	N/M	K/M	Kas	N/M	K/M	Kas	N/M	K/M	Kas	N/M
Frequency of sighting																		
Sighted	67.2	87.5	10.9	20.7	80.4	9.1	17.2	28.6	7.3	3.5	5.4	-	1.7	7.1	-	1.7	-	-
Very frequent	12.1	64.3	3.6	12.1	51.8	7.3	6.9	3.6	3.6	1.7	3.6	-	-	1.8	-	1.7	-	-
Moderate	37.9	23.2	1.8	6.9	28.6	1.8	1.7	12.5	-	1.7	1.8	-	1.7	3.6	-	-	-	-
Rare	17.2	-	5.5	1.7	-	-	8.6	12.5	3.6	-	-	-	-	1.8	-	-	-	
Number sighted																		
Increasing	20.7	71.4	5.5	10.3	53.6	7.3	5.2	5.4	5.5	3.4	5.4	-	-	-	-	-	-	-
Decreasing	10.3	8.9	-	1.7	16.1	-	5.2	3.6	-	-	-	-	-	3.6	-	1.7	-	-
No change	34.5	7.1	5.5	8.6	10.7	1.8	6.9	19.6	1.8	-	-	-	1.7	3.6	-	-	-	-
Nuisance																		
Very	25.9	80.4	5.5	10.3	55.4	3.6	8.6	3.6	5.5	3.4	1.8	-	1.7	3.6	-	1.7	-	-
Moderate	29.3	7.1	1.8	5.2	25.0	5.5	3.5	12.5	1.8	-	3.6	-	-	3.6	-	-	-	-

Key: K/M = Kishushe/Maktau; Kas = Kasigau; N/M = Ngangao/Mbololo.

Table 9.14
Other animals sighted, trend in number and nuisance

	Baboon			Porcupine			Monkeys			Fowls		
	K/M	Kas	N/M	K/M	Kas	N/M	K/M	Kas	N/M	K/M	Kas	N/M
Frequency of sighting												
Sighted	50.0	83.9	65.5	10.3	7.1	21.8	27.6	60.7	92.7	12.1	37.5	3.6
Very frequent	25.9	83.9	49.1	6.9	-	12.7	19.0	57.1	83.6	12.1	37.5	1.8
Moderate	13.8	-	9.1	3.5	7.1	7.3	3.4	3.6	3.6	-	-	1.8
Rare	10.3	-	7.3	-	-	1.8	5.2	-	5.5	-	-	-
Number sighted												
Increasing	24.1	83.9	52.7	6.9	1.8	16.4	17.2	57.1	80.0	12.1	35.7	-
Decreasing	-	-	1.8	3.5	1.8	-	5.2	3.6	7.3	-	1.8	-
No change	25.9	-	10.9	-	3.6	5.5	5.2	-	5.5	-	-	3.6
Troublesome												
Very	27.6	83.9	56.4	1.7	1.8	16.4	19.0	57.1	87.3	8.6	37.5	-
Moderate	6.9	-	5.5	3.5	5.4	3.6	3.4	3.6	1.8	-	-	3.6
Slightly	15.5	-	3.6	5.2	-	1.8	5.2	-	3.6	3.5	-	-

Key: K/M = Kishushe/Maktau; Kas = Kasigau; N/M = Ngangao/Mbololo.

The analysis of animals sighted, trends in number and perceived nuisance provides a good basis for the identification of wild animals that impact negatively on humans and their socio-economic activities. Trends in numbers in this analysis also indicate the current extent of the problem and expected situations in future. However, it has limitations, as frequency of sighting a specific wild animal species does not necessarily reflect the population status. Frequency of sighting a specific animal species may depend on several ecological and socio-economic factors, which are dynamic in nature. Nuisance, though qualitative, indicates which animals are most problematic.

Wildlife impact on humans

Wildlife impact on humans can be both direct and indirect. The direct impacts include human injury and/or death caused by wild animals and loss of freedom and security. These impacts have many other related social and economic impacts on the people affected. The indirect impacts include damage to property (such as livestock depredation and crop foraging and trampling), competition for space, competition with livestock for water and pasture, destruction of infrastructure, hosting and transmission of diseases, destruction of trees and seedlings, and others (Box 9.1). The loss and fear wildlife cause by destroying property and injuring or killing humans are the principal sources of human-wildlife and management-related conflicts. Loss due to injury and/or death of a breadwinner is usually devastating to families, while material losses often cause unbearable financial suffering, particularly when agricultural loans are involved. In some areas, farmers have abandoned good cropland because of the sheer futility of trying to raise crops to maturity in the presence of uncontrolled wild animals.

In the analysis of wildlife impact on humans, it is noted that residents of the hills are less affected compared with the residents of the lowlands. However, the majority of the people on the hills have interests in the lowlands. Some have crop farms and livestock both in the lowlands and on the flanks of the hills. They are therefore affected by wild animals in the lowlands, such as the elephants, which are not found in the hill forest. This also depends on seasons and climatic conditions. For instance, during droughts, most animals in the lowlands and, particularly, the elephants, move towards the wetter flanks of the hills (see Figure 9.1).

Table 9.15
Main herbivores in Taita that cause human injury and/or death (%)

	Elephants	Buffaloes	Bush pigs
Extent			
Never witnessed	43.8	93.5	92.9
Witnessed	56.2	6.5	7.1
Insignificant	-	1.8	1.8
Less significant	25.4	-	4.1
Significant	18.9	3.0	1.2
Very significant	11.8	1.8	-
Condition			
Pastoral land	27.8	4.7	0.6
Watering sites	1.2	-	-
Cropland/homestead	24.3	0.6	6.5
Wildlife migratory route	0.6	-	-
Anywhere	2.4	1.2	-

Human bodily injury and/or death, loss of freedom and security

Wildlife animals may cause human bodily injury and/or death in several ways. Herbivores such as elephants may crush and trample, while the buffalo may hit and trample human beings. The wild pig may hit, while the porcupine may simply spike using its spines. The

carnivores cause human bodily injury and/or death by mauling and they may feed on humans. The bite of some other animals such as the baboon may be fatal. In Taita oral histories, baboons are known to kill and feed on human babies, chickens and the young of domestic animals. Because of these and other dangers, the respective animals are feared and when their presence is noted, human activities and movements are curtailed. In some areas inhabited by elephants, lions, buffaloes and other animals considered dangerous, children fail to go to school due to fear or have to be escorted. This may considerably disturb community life, because the areas where such animals occur tend to be remote, with few schools and the distances from villages or households to schools consequently tend to be long.

Herbivores

In Taita, 56.2% of the households indicate that, among herbivores, elephants are responsible for most human injuries and/or deaths (Table 9.15; Box 9.1). Compared to bush pigs (7.1%) and buffaloes (6.5%), the impact of elephants is very significant. Comparing buffaloes and bush pigs, it seems that the bush pigs are more of a problem than the buffaloes. However, in terms of extent, buffaloes are second to the elephants, as their impact is significant to very significant, while that of bush pigs is insignificant to less significant and may not cause death. Most human injuries and/or deaths caused by elephants (27.8%) occur in pasture land[20], and 24.3% within cropland or homesteads. About 2.4% of the cases occur 'anywhere', 1.2% at the watering sites and 0.6% on migratory routes. For the buffaloes, most cases of human injuries and/or death (4.7%) are caused on pasture land, 1.2% anywhere and 0.6% within cropland or homesteads. About 6.5% of the cases of human injuries caused by bush pigs occur in the croplands or homesteads and 0.6% in the pasture land (Table 9.15).

Box 9.1

"KWS rangers despatched to tackle rogue jumbos and lions"

"The Kenya Wildlife Service (KWS) has dispatched rangers to parts of Voi and Mwambirwa divisions in Taita Taveta. Their mission is to drive away marauding elephants and lions, which have raided the area. KWS Community Wildlife Officer, James ole Perrio, said yesterday that the rangers are also equipped with traps to catch lions and transfer them away from the area. Perrio said the rangers will drive out the game from the settlement area where they are posing danger to the people. Recently, marauding elephants and lions killed livestock and destroyed crops after they invaded Voi and Mwambirwa divisions. Eleven cows were killed and eaten by lions, ten at Kasigau location in Voi and one at Ronge Juu in Mwambirwa. Three goats and a sheep have also been killed and eaten by lions at Ronge Juu. Several water pipes have been vandalised by the elephants forcing residents to go without clean water. Last month a 55-year-old man identified as Godfrey Mushamba, was trampled to death by a rogue elephant at Paranga area in Tausa division. Perrio said yesterday that one rogue elephant had been shot dead by KWS rangers. He disclosed that three people have been killed by elephants in Taita-Taveta District this year…"
(*Source:* http://www.eastandard.net/national/Default.htm East African Standard Online Edition, Thursday, 12 September 2002. Report by Renson Mnyamwezi)

[20] Pasture land in this case refers to the grazing areas in the lowlands.

Carnivores

With respect to the carnivores, about 48.5% of the interviewed households have witnessed or experienced human injuries and/or death caused by lions, 10.1% by leopards, 4.7% by hyenas, 3.0% by the cheetah and 1.2% by wild dogs and jackals (Table 9.16). Generally, in terms of extent, human injuries and/or death are less significant for all carnivores apart from the lions. The impact is significant to very significant. This form of conflict mainly occurs in pasture land and there are few cases within the homesteads.

Table 9.16
Main carnivores in Taita that cause human injury or and death (%)

	Lions	Hyenas	Leopards	Wild dogs	Cheetahs	Jackals
Extent						
Never witnessed	51.5	95.3	89.9	98.2	97.0	98.8
Witnessed	48.5	4.7	10.1	1.8	3.0	1.2
Insignificant	3.0	1.8	0.6	-	-	-
Less significant	29.0	3.0	7.1	1.2	3.0	0.6
Significant	12.4		1.2	0.6	-	0.6
Very significant	4.1		1.2	-	-	-
Condition						
Pastoral land	43.8	4.7	7.7	0.6	2.4	0.6
Watering sites	1.8	-	-	-	-	-
Cropland/homestead	0.6	-	1.8	1.2	0.6	0.6
Wildlife migratory route	0.6	-	-	-	-	-
Any where	1.8	-	0.6	-	-	-

Other animals

Other animals, which include baboons, monkeys and porcupines, do not cause major human injuries or death. However, it was indicated that in some cases the baboons and porcupines may cause bodily injuries.

Table 9.17
Numbers of livestock killed by wildlife in the last five years

Numbers	Cattle		Goats		Sheep		Donkeys	
	Freq	%	Freq	%	Freq	%	Freq	%
0	101	59.8	126	74.6	159	94.1	164	97.0
1-5	37	21.9	24	14.2	8	4.7	5	3.0
6-10	26	15.4	9	5.3	1	0.6		
11-15	1	0.6	3	1.8	1	0.6		
16-20	0	0.0	4	2.4				
21-25	0	0.0	3	1.8				
26-30	3	1.8						
46-50	1	0.6						
Total	169	100.0	169	100.0	169	100.0	169	100.0

Livestock depredation

In the Taita area, 52% of the interviewed households indicate having experienced loss of livestock in the last five years. The total number of livestock species killed per household within the last five years varies considerably. For cattle, 40.2% of the households have experienced loss (Table 9.17), 37.3% have lost between 1 and 10 heads of cattle. For goats and sheep, 25.4% and 5.9% of the households, respectively, have experienced loss and the number of animals lost varies between 1 and 25 head, with 14.2% of the households having lost between 1 and 5 heads of goats and 4.7% of the households having lost between 1 and 5 head of sheep. About 3.0% of the households have experienced loss of donkeys, but this percentage is mainly low, because few households keep donkeys. In this regard, the chance of having specific animals killed by wildlife is higher for the kind of livestock that is common in most households. Cattle are the most common and the most predated, while the donkeys are the most rare and least predated. Lions, elephants, hyenas and leopards are the main animals that depredate livestock and other domestic animals (Table 9.18). About 53.3% of the households have experienced livestock loss due to lions, 41.4% due to elephants, 37.3% due to hyenas and 14.2% due to leopards. Livestock losses due to wild dogs have been experienced by 4.1% of the households, while the same percentage experienced livestock loss due to cheetahs and 3.6% due to baboons. Jackals, buffaloes and porcupines have also been identified as causes of livestock depredation. In terms of extent, loss of livestock due to lions is very significant and it is significant for elephants. About 44.4% of the households indicate that livestock depredation by lions occurred in pasture land during the wet season, 6.5% at watering sites and 2.4% within homesteads. About 32.5% of livestock depredation caused by elephants occurred in pasture land, 6.5% at the watering sites and 2.4% within the homestead.

Table 9.18
Wild animal causing livestock depredation (%)

	Carnivores:						Herbivores:		Others:	
	Lions	Hyenas	Leopards	Wild dogs	Cheetahs	Jackals	Elephants	Buffaloes	Porcupines	Baboons
Extent										
Not experienced	46.8	62.7	85.8	95.9	95.9	98.8	58.6	98.2	98.3	69.2
Experienced	53.3	37.3	14.2	4.1	4.1	1.2	41.4	1.8	1.2	3.6
Less significant	0.6	0.6	3.0	-	0.6	0.6	1.2	1.8	-	-
Significant	7.7	7.7	5.9	2.4	1.2	-	24.9	-	-	3.0
Significant	0.0	0.0	0.0	0.0	0.0	0.0	12.4	-	0.6	23.1
Very significant	45.0	29.0	5.3	1.8	2.4	0.6	3.0	-	-	1.2
Conditions										
Not experienced	46.8	62.7	85.8	95.9	95.9	98.8	58.6	98.2	98.2	69.2
Pastoral land	44.4	31.4	10.1	3.6	3.0	0.6	32.5	-	-	10.1
Watering sites	6.5	4.1	1.8	-	0.6	0.0	6.5	-	-	1.8
Cropland/homestead	2.4	1.8	2.4	0.6	0.6	0.6	2.4	1.8	1.8	18.9

Crop foraging and trampling

Over 91% of all households interviewed have experienced crop loss due to wildlife in all parcels of land used for crop farming. Herbivores and some other animals, particularly the

baboons, monkeys, porcupines, bush pigs and fowls, cause loss and destruction of crops. Small rodents, such as rats and moles are not considered in this study. The form of destruction is mainly through foraging and trampling. About 65.1% of households experience crop foraging by elephants, 61.5% by baboons, 56.2% by monkeys, 44.4% by bush pigs and 23.1% by gazelles. Elands, fowls, dik diks, buffalo and porcupines, in decreasing order, forage on crops. The zebras are slightly troublesome, with only 6.5% the households having experienced loss of crops due to them. Fowls are considered the most troublesome among the birds and their main impact is felt during the planting season, as they feed on maize seed once planted or when germinating. In terms of crop trampling, the elephants lead, followed by the bush pigs, experienced by 59.8% and 20.1% of the households, respectively. However, it is very significant for the elephants and less significant to significant for the bush pigs.

Table 9.19
Wild animals that forage and trample crops (%)

Extent	Elep	Buff	Eland	Gaz	Zebra	Bush pig	Dikdik	Porc	Baboon	Monk	Fowl
Foraging											
Not experienced	34.9	87.6	81.1	76.9	93.5	55.6	85.8	88.2	38.5	43.8	81.1
Experienced	65.1	12.4	18.9	23.1	6.5	44.4	14.2	11.8	61.5	56.2	18.9
Insignificant	1.2	0.6	0.6	0.6	0.6	2.4	0.6	0.6	4.1	2.4	-
Less significant	-	1.2	-	1.8	1.2	-	0.6	0.6	4.1	2.4	0.6
Significant	11.8	5.9	7.7	11.2	4.1	4.1	6.5	0.6	7.1	3.0	0.6
Very significant	52.1	4.7	10.7	9.5	0.6	37.9	6.5	10.1	46.2	48.5	17.8
Trampling											
Not experienced	40.2	90.5	88.2	93.5	93.5	79.9	99.4	97.0	84.0	88.2	100.0
Experienced	59.8	9.5	11.8	6.5	6.5	20.1	0.6	3.0	16.0	11.8	-
Insignificant	0.6	0.6	0.6	-	-	0.6	-	1.2	1.8	2.4	-
Less significant	-	1.8	5.9	1.2	1.2	7.1	-	-	3.0	3.6	-
Significant	10.7	4.7	5.3	4.7	4.7	7.1	-	0.6	4.1	0.6	-
Very significant	48.5	2.4	-	0.6	0.6	5.3	0.6	1.2	7.1	5.3	-

Elep=Elephant; Buff=Buffaloes; Gaz=Gazelle; Porc=Porcupine; Monk=Monkey

Disease transmission

The problem of disease transmission to domestic animals did not seem to be well known to the households interviewed. For all the animals suspected to transmit diseases, less than 5% of the households have experienced the problem. The most feared diseases that affect wildlife include rinderpest, contagious bovine pleuropneumonia (CBPP), East Coast fever (ECF), foot and mouth disease (FMD), rabies and anthrax. However, disease research in the wildlife-livestock interface in Kenya by the International Centre for Insect Physiology and Ecology (ICIPE) reveals a lack of wildlife reservoir, with the exception of some important problem areas (Grootenhuis and Olubayo 1993). The latter include the importance of wild Bovidae as reservoir hosts for ECF of livestock. The most discussed diseases concern the herbivores and the reason for their study is mainly their impact on livestock.

Competition for pasture and water

About 57% of the households which were interviewed have experienced competition for pasture with the elephants and the extent to which this is experienced ranges from significant to very significant (Table 9.20). The rest of the herbivores are not a major problem, as over 90% of the households have not experienced competition for pasture and water. Some households indicate that carnivores compete with domestic animals for water, particularly lions, hyenas and leopards. Although these carnivores also take water, their presence at the watering sites may also be for hunting purposes.

Table 9.20
Competition for pasture and water

	Competition for pasture and water:							Competition for water:		
	Elephants	Buffaloes	Elands	Gazelles	Zebras	Bush pigs	Baboons	Lions	Hyenas	Leopards
Not experienced	43.2	92.9	99.4	94.1	94.7	97.6	95.9	82.8	93.5	95.3
Experienced	56.8	7.1	0.6	5.9	5.3	2.4	4.1	17.2	6.5	4.7
Insignificant	-	3.6	-	2.4	3.0	1.2	4.1	3.6	1.2	1.2
Less significant	2.4	1.8	0.6	2.4	2.4	-	-	4.7	2.4	1.8
Significant	30.2	1.8	-	0.6	-	1.2	-	7.1	2.4	1.2
Very significant	24.3	-	-	0.6	-	-	-	1.8	0.6	0.6

Other problems caused by wild animals

Other problems that are caused by wildlife include destruction of structures and vegetation. This is particularly the case with the elephants. Structures destroyed include buildings, water pipes and watering places, fences, tree seedlings and trees. Elephants have a capacity to destroy woody and herbaceous vegetation. Most elephants in Kenya are confined to relatively small areas after losing their capacity to migrate through the blockage of their migratory routes or fragmentation of their habitats. In Taita, particularly in some parts of the park where elephant densities are high, considerable tree vegetation has been lost and increasingly more is at great risk as the number of elephants continues to rise in the limited areas (Njogu 1997). Waithaka (1997) indicates that some of the highly impacted areas harbour nearly all of the 265 plant species endemic to Kenya and are also the most important water catchments areas for the republic.

In Kenya, elephants kill more people per year than all the other wildlife species put together. From January 1989 to June 1994, wild animals in Kenya killed 230 people and injured 218, with an average of 42 deaths and 40 injuries per year and elephants perpetrated 79.4% (173) of these attacks (Waithaka 1997). Elephants are the worst problem animals because they are the most pervasive, voracious and powerful. In Taita District, elephants killed or injured 36 people between 1989 and 1993 (Waithaka 1997). There are many other impacts associated with elephants, which include fear, human injury and/or death, which affect the social and economic life of a household. This includes psychological effects of fear, children's failure to go to school, breadwinner's incapacitation or death, among many others. The elephants also lead in crop foraging and trampling and are second to lions in livestock depredation in Taita.

In terms of overall wildlife impact on human beings, the lions are second to the elephants. The Tsavo lions are reputed to be larger, more aggressive, and more prone to attack people and livestock than their relatives in the plains (Caputo 2000). This may be explained, among other reasons, by the difference in habitat, as it is easier to hunt in the plain than in bushes and the lions therefore would go for the prey that is easy to catch. Some have even suggested that they are an entirely different kind of lion (Von Buol 2000), but this claim has not been substantiated. It is noteworthy that human-predator conflicts, particularly with the lions, show significant geographical and seasonal variations in Kenya, and that the results of studies in one part of the country cannot be generalised to other parts. For instance, attacks on livestock peak in the dry season in Maasai Mara (Karani 1994), but they do so in the wet season in Taita.

There are unique cases of direct human-wildlife conflict such as cars or trains knocking down wild animals. On 10 July 2002, three people died and four others were critically injured when their vehicle hit an elephant along the Taveta/Voi road. The vehicle, a pick-up, had nine occupants and was ferrying tomatoes from Taveta to Kongowea market in Mombasa when the accident occurred near Bura trading centre at night.[21] This also serves as an example of how the elephants move round the Bura-Maktau 30 km electric fence to human habitations.

Increasing direct human-wildlife conflicts

The nature and extent of direct human-wildlife conflict are related to socio-economic and ecological factors, all of which are very dynamic and sometimes unpredictable, such as droughts. In Taita, eight factors were identified as the main causes of human-wildlife conflicts in the 1970s and 1990s. These factors, in order of significance in the 1990s, include human population increase, increasing number of wildlife, poaching and hunting, increasing number of livestock, changes in land-use patterns, land privatisation, lack of benefits to land owners and drought. Comparing the 1970s and the 1990s, all the factors apart from numbers of livestock and poaching have contributed to increased human-wildlife conflicts (Table 9.21). In the 1990s, the numbers of livestock and poaching have decreased substantially. According to the perceptions of the interviewed households, the extent to which these factors will contribute to human-wildlife conflicts in the 2020s will be less for all of them except land privatisation. However, the decrease does not imply that human-wildlife conflicts will not be experienced.

Competition for land is the main unrelenting problem, since human beings tend to occupy and settle permanently in new areas initially used by wildlife, particularly the lowlands. In the same vein, human needs increase with rising population numbers. Since the local people depend on agriculture, more land is needed under current farming technology for farming and livestock keeping. The local communities in Taita rely heavily on the natural environment for various products, particularly wood products for construction and household energy. In this context, competition for land and natural resources is intense among people themselves and between them and wildlife.

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[21] East Africa Standard, Online Edition http://www/eastandard.net/national/nat11072002001.html (11 July 2002). Report by Daniel Nyassy.

Table 9.21
Main factors causing increase in human-wildlife conflict (1970s, 1990s and extrapolated 2020s)

Causes of conflicts	1970s	1990s	2020s
Increasing human population	1	1	1
Increasing number of livestock	2	2	2
Increasing number of wildlife	2	2	2
Poaching/hunting	4	5	7
Changed land-use pattern	5	4	4
Lack of benefit to land owners	6	6	5
Drought	7	8	8
Land privatisation	8	7	5

Note: The range 1 to 8 is the ranking of factors in a decreasing order, where 1 is the most leading factor and 8 the last in causing human-wildlife conflict.

Conclusions

Direct human-wildlife conflicts are not new. They are the outcome of ecological interactions. They include the negative impact of humans on wildlife and their habitat and wildlife impact on humans and their socio-economic activities (Box 9.2). In wildlife areas, in particular, conversion of the natural landscape into human-dominated landscapes inevitably results in direct human-wildlife conflicts. Wild animals are certain to lose unless protected. Inevitably, human beings also lose some essential environmental services.

Box 9.2
Summary of direct human-wildlife conflicts

Human impact on wildlife
- Competition for land
- Competition for pasture and water
- Direct exploitation of wildlife and forest (legal and illegal)

Wildlife impact on humans
- Human bodily injury and/or death and related psychological impacts and socio-economic losses
- Loss of freedom, security and other socio-economic losses
- Livestock depredation
- Crop foraging and trampling
- Disease transmission to livestock
- Competition for land
- Competition for pasture and water
- Other problems
  - Destruction of human structures: buildings, water pipes, roads, watering places, fences, tree seedlings and trees, among others
  - Destruction of natural vegetation and general landscape alteration
  - Causing road accidents

Human impact on wildlife and wildlife impact on humans are inseparable, since they are inevitable outcomes of ecological interactions. However, this analysis is aimed at illustrating why the local communities are stakeholders and demonstrates how they bear the cost of both wildlife and forest conservation in terms of conservation conflicts.

Among all the wild animals, the elephants stand out as the greatest threat to humans. They are responsible not only for crop loss, but also for human injury and/or death and livestock depredation. Their huge size, strength, intelligence, great feeding capacity and loss of fear for people make them more conceited and difficult to manage. Second to elephants in Taita are the lions, which mostly predate on livestock and cause human injuries and/or death. Other animals such as bush pigs, baboons and monkeys are often ignored, but in Taita – particularly for the households neighbouring forest areas – they are considered a serious menace. These human-wildlife conflicts illustrate how local communities bear the cost of maintaining wildlife and demonstrate how complex human-wildlife conflicts are in reality. The wildlife and forest management approach and the number of stakeholders involved further compound human-wildlife conflicts. The next chapter discusses management approaches which, in the process of alleviating direct human-wildlife conflicts, contribute to more conflicts. In this case, the conflicts are categorised as management-related conflicts.

10

Wildlife and forest biodiversity management-related conflicts

This chapter discusses the second category of human-wildlife and human-forest biodiversity conflicts, namely the management-related conflicts. The preceding chapter demonstrated how the local communities directly interact with wildlife and forest conservation areas and how this resulted in human-wildlife conflicts. This chapter discusses how the local communities interact with wildlife and forest in the context of community-based conservation endeavours, which are intended to ameliorate the direct human-wildlife conflicts. This constitutes conservation activities that deny the local communities entitlement to what they consider as theirs, while they are suffering direct human-wildlife conflicts. This chapter delves into the specific endeavours that are supposed to appease the local communities in order to make them tolerate and support wildlife and forest conservation. Since both wildlife and forest management are centralised, we first review the management at the national level and then narrow down to identify specific efforts in Taita.

Community participation efforts in wildlife conservation

The Kenya Wildlife Service, like its predecessor, the Wildlife Conservation and Management Department (WCMD), acknowledges the problem of human-wildlife conflicts. The conservation strategies used in the past have been simply imposing law and orders, ignoring people's needs and rights. People's perception – which has not changed yet – is that the government loves animals more than people. Empirical data gives overwhelming credence to this view. For instance, as quoted earlier, elephants killed 36 people in Taita Taveta District from 1989 to 1993. In the same period, the department dealing with problem animal control killed 23 elephants and the local compensation committee met three times without anyone having received compensation. The human-wildlife problem is one of the most pressingproblems in

wildlife areas and has never in Kenya's wildlife history been addressed seriously with the urgency it deserves. Likewise, in the history of conservation, the antipathy towards wildlife and conservation agencies has been building up. With changes in ecological and socio-economic circumstances, the problem could erupt with serious repercussions. However, the issue is now receiving considerable attention and may bring stakeholders together as they work to find solutions to their common problem. The main strategy used is community-based conservation, which has yet to endear the local communities to wildlife conservation.

The KWS contends that conflicts between people and wildlife have increased inevitably over time as human settlement and cultivation have expanded (KWS 1990). Though KWS has set its goal as 'the conservation of the natural environment of Kenya, the sustainable use of wildlife resources and the protection of people and property from injury or damage caused by wildlife,' (KWS 1996: 2), the human-wildlife conflict continues to be a serious issue, probably attracting more attention currently than ever before. Indeed, conflicts between wildlife and people, and the attitude of the wildlife conservation agencies towards the affected communities and *vice versa* have always been an issue in the history of wildlife conservation in Kenya.

In response, many stakeholders – including KWS – have argued that, 'the major way to achieve KWS' goals is by achieving more economic benefits from wildlife for Kenyan*s*'. In this endeavour, KWS has attempted to implement several initiatives to help the communities who live with wildlife. In the early 1990s, KWS introduced the Community Wildlife Programme (CWP) under a new department, the Community Wildlife Service (CWS). This development was, and still is, regarded as the largest and most innovative element of KWS's policy framework in the early 1990s (KWS 1990). There are also other initiatives developed in conjunction with other stakeholders, especially the ENGO[1] stakeholders, such as KWS-AWF Tsavo Community Conservation project, which started in 1988-89 to test institutionally viable community conservation methods and the CORE project currently under implementation. A summary of KWS conservation efforts is presented in Box 10.1.

The Community Wildlife Programme

The KWS underscores its endeavours in CWS as going far beyond anything the former WCMD ever contemplated (KWS 1990). That is, to work with communities in a conservation partnership to reduce conflict and create benefits from wildlife. The main instruments of CWP are the Revenue Sharing programme, the Wildlife for Development Fund (WDF), wildlife utilisation (WU), problem animal control (PAC), fencing, and compensation. However, despite these key management initiatives, they have experienced serious problems, raising more conflicts that we suitably categorise as 'management-related conflicts'. In the first instance, CWS has been criticised as working alone, hardly collaborating (if at all) with other relevant sections of KWS (institutional conflicts), local NGOs and all other stakeholders. It has been argued further that the CWS project has been characterised by too liberal cash handouts (KWS 1994). This may have not been taken kindly by other sections of KWS, therefore creating internal institutional management conflicts.

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[1] ENGOs are Environmental Non-Governmental Organisations. These include mainly those that are interested in the environment, in general, and in forest and wildlife conservation, in particular.

Box 10.1
Summary of KWS community conservation efforts

I Early community conservation before 1990
- World Bank-funded revenue-sharing scheme around Amboseli in the 1970s
- Ban on hunting
- Wildlife Extension project around Amboseli-Kajiado in the early 1980s
- KWS-AWF Tsavo community conservation project started in 1988 to test institutionally viable community conservation methods, including a trial of revenue sharing and the grazing incursion resolution, building on earlier project based experience
- Revenue sharing based on conservation criteria initiated

Lessons learnt:
- Community conservation evolved mainly in pastoral areas
- Fencing considered as the main option for hard-edge park areas
- Revenue sharing based on conservation criteria
- Cropping and wildlife farming (consumption use) increase in importance, but are hampered by lack of regulations and an appropriate legal basis.

II Emerging initiatives and structure for community conservation between 1991 and 2002
- Establishment of the Community Wildlife Service (CWS)
- Many staff recruited from outside KWS and community conservation receives large donor support for capacity building and field activities
- Evolution of the Wildlife for Development Fund and revenue sharing guidelines, with a focus on enterprise development
- Training for community conservation re-orientation
- Studies on utilisation, land use, pricing and legal issues to formulate a basis for policy revision
- Further increase in the importance of cropping and wildlife farming (consumption use) despite lack of an appropriate legal basis
- Partnership establishment through Conservation of Biodiverse Resource Areas (COBRA, 1992-1999)
- Enterprise development under the Conservation of Resources through the Enterprises (CORE) project, which is the continuation of COBRA. The main thrust of the COBRA project has focussed since 1995 on the support of enterprises related to eco-tourism, which is currently the key focus of the CORE project.

Issues and constraints:
- CWS is seen as parallel to mainline KWS
- Revenue sharing is raising expectations
- Relatively large donor funding driving capacity building for CWS
- Land use and tenure and entitlement issues are critical
- Wildlife Development Fund and revenue sharing failing in the late 1990s through funding problems
- Lack of sustainability of donor-driven initiatives.

III Evolving policy for community conservation beyond 2000
- KWS community conservation, Wildlife for Development Funds and revenue sharing policy approved by Board
- Problem Animal Control (PAC) and fencing policies being developed
- Emphasis on consumption use
- Studies undertaken will result in policy revision

The Revenue Sharing programme and the Wildlife for Development Fund

KWS has been sharing revenues with the people who live near parks or KWS-managed reserves, especially those who tolerate wildlife on a day-to-day basis. To guarantee equitable distribution of funds and effective projects, revenue sharing was worked out with the commu-

nities affected. In line with the District Focus for Development Policy,[2] the KWS requires recipient communities to obtain the necessary approval for projects from the District Development Committee (DDC) and sub-DDC. Clearly, such programmes require the communities to help in planning and in following standards of accountability and transparency in allocating funds. Whilst the mechanisms for revenue sharing have been developed, KWS has supported several community development projects. Since KWS was formed in June 1993, over Ksh. 15 million had been shared and Ksh. 36 million pledged for 1993/94.[3] Under the Revenue Sharing programme, KWS intended to build towards sharing 25% of its park or reserve gate entry fee revenue on community projects.[4] This was an ambitious programme at that time. It was hoped that it would be achieved by the end of the first five years of the programme ending in 1997 by reaching self-sufficiency through the PAWS programme in 1996.[5] However, in an effort to survive a looming shortage of funds, the management indicated that, 'revenue sharing is an integral part of park management, to be accorded a high priority and is not an optional extra, to be cut when times are hard' (KWS 1994).[6] However, the WDF activities were stopped in October 1998.

The promise to local authorities neighbouring national parks of 25% of the parks' gate fee revenue was not honoured. It created hope and anxiety and is maintained as a right by the respective local authorities up to the present time. This may intensify the conflict between the various local authorities and KWS. It may also be extended to local communities through elected councillors who may politicise the issue.[7] The government and KWS want to share the benefits of wildlife with local people, but for various reasons, sometimes including local power struggles, the payoff often never comes. Generally, the policy seems to invite bitter and inevitable clashes of interests among the stakeholders. It is not clear how the figure of 25% was determined, how it would be distributed among local stakeholders, how it would endear wildlife conservation to local people and what its feasibility would be. The proposal was to share with the local authorities, but it was not clear how the local people themselves would react, especially with the knowledge about the inefficiency of local authorities and the fact that local communities bear the substantial costs of maintaining wildlife on their land. This would cause more conflicts between the local people, local leaders, local government structures and other stakeholders, including relevant NGOs. The former director of KWS

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2 The District Focus for Development was launched in the mid-1980s as a decentralisation endeavour in Kenya.

3 Although data for the situation since 1994 are not available, it is clear that the coffers were drying up and no substantial funds have been obtained to carry on with the programme since Dr Leakey resigned in 1994.

4 It is noted that the number of tourists visiting Kenya varies from year to year. By 1994, KWS was receiving about Ksh. 700 million a year from park entries. However, the total budget was about Ksh. 3.4 billion, mainly from donor aid and the treasury. This includes a stipend of Ksh. 160-180 million per year to make KWS fully parastatal, exempt from the State Operation Act and more self-sufficient financially, so that it would be able to undertake a commercialisation programme (Swara, 17(6), 1994).

5 The PAWS (Protected Area Wildlife Service Programme) focused on the rehabilitation of a few commercially viable parks which were destroyed by years of mismanagement in the 1980s. We will discuss this programme in more detail in Section 10.2.

6 The KWS Memorandum to all KWS staff from AD-CWS, 21 January 1994 regarding the Community Wildlife Programme

7 For instance, civil leaders and others strongly opposed the proposal for the translocation of 6,000 elephants from Laikipia District to Meru National Park by November 2001 (East Africa Standard, Online Edition Saturday, 24 November 2001).

notes that all sorts of people, from local leaders to members of parliament, wanted part of the share of the promised revenue (Leakey and Morell 2001, p. 207).

The Wildlife for Development Fund (WDF) was established by KWS in 1994 to support projects in any area with wildlife, even if not close to parks. Projects related to wildlife through enterprise development (*e.g.* tourism enterprises) or community projects (*e.g.* water points, schools, dispensaries) were to be supported. KWS obtained donor funding for the Wildlife for Development Fund from USAID, IDA, IMF and the World Bank. A few projects were funded, such as construction of a village polytechnic at Maktau in Taita, Ndovu clinic in Voi, water supply in Rukanga and the initiation of Lumo sanctuary. However, in general the goals of the Wildlife for Development Fund were not achieved, as was the case with revenue sharing. The unfinished and non-functioning village polytechnic at Maktau is a clear evidence of failure. The operationalisation of Lumo sanctuary and making it a reality is still a vision, even under the CORE project. However, there are successful projects, such as the Ndovu clinic in Voi, but they have not been adequate to appease the local communities. Since there are no clear distinctions between KWS/WDF projects and those under the government, particularly in situations where the local communities are not involved in project identification, such projects tend to be identified with other government departments. In any case, the development of social amenities and infrastructures has been a responsibility of the government, and local communities consider it as a right. Therefore, there is nothing unique with the KWS/WDF projects which may endear the local communities to wildlife conservation. Both the Revenue Sharing programme and the Wildlife for Development Fund raised the expectations of the local communities and other stakeholders. At an institutional level, revenue sharing and the Wildlife for Development Fund seemed to be one and the same thing, wearing different faces in an effort to attract funding and survive a looming shortage of funds, as was being envisaged under the PAWS programme.[8]

Wildlife utilisation

Utilisation may be either legal or illegal and KWS has been involved in both by initiating 'legal' utilisation and stamping out the illegal utilisation. However, since the ban on any form of hunting and trade in wildlife products has not been lifted, even the KWS utilisation initiatives are illegal.

'Legal' utilisation

Under the Community Wildlife Service (CWS), KWS introduced 'wildlife use rights,' which allow people to use wildlife on their land for tourism or, where suitable, for culling or game cropping for meat and trophy. Such consumptive utilisation started in 1989 on a pilot basis and was authorised by the President. Use rights applicants prepare a plan for the sustainable management of wildlife over an area that is large enough to be ecologically viable. Many large private ranches have applied. KWS extension efforts focus on assisting communally owned ranches and small-scale landowners to obtain use rights. Wildlife utilisation proponents argue that it may be the only sustainable way among all community conservation endeavours, as it does not require donor funding, which is not sustainable. Examples are other

[8] KWS Policy Statement and Operational Summary for Revenue Sharing and the Wildlife Development Fund, 21 February 1994.

initiatives, such as the Revenue Sharing programme and the Wildlife for Development Fund, which are mainly donor funded. Other sources of funds include gate fees, which are not reliable, as they depend on the numbers of tourists visiting Kenya and wildlife areas, in particular.[9]

The drive towards utilisation is currently very strong, but several questions related to management conflicts require to be answered, in particular, how the small-scale farmers who are the majority and main victims of human-wildlife conflicts will benefit. Generally, utilisation seems to focus on private ranchers (private individuals and companies) and not on small-scale landowners. In reality, the small-scale landowners will not have enough land for ecologically viable wildlife utilisation. The likelihood is that it will intensify conflict between the large-scale ranchers and the small-scale farmers whose interests differ. These would be viewed by a cross section of stakeholders as KWS efforts to transfer human-wildlife conflicts to large-scale ranchers. Moreover, utilisation will not serve the interests of small-scale farmers, since human-wildlife conflicts will, in principle, not be controlled by utilisation (unless over-utilisation is the anticipated goal to insidiously eliminate all wildlife, hence human-wildlife conflicts). This may be the case if monitoring and control of hunting quotas are not carefully executed. Certainly, subsistence poachers and those poaching for commercial sales of bush meat and trophies would take advantage and, since the policy in dealing with poachers (particularly trophy hunters) is 'shoot to kill,' management conflicts with the local communities will be intensified. Nevertheless, the support of local communities will depend on how wildlife utilisation will contribute to their income and provide cheap sources of protein. However, the question of wildlife ownership and who should utilise it will add to the management conflicts. In any case, not all stakeholders will be contented with the introduction of wildlife utilisation. For instance, some hoteliers and tour operators argue that sport hunting, or utilisation for that matter, would not appease most tourists and may result in declining numbers of tourists visiting the country. Conservationists who believe in tenets of protectionism may also oppose wildlife utilisation. Therefore, a mechanism for creating consensus, which involves clear entitlement arrangements with relevant stakeholders is imperative.

Illegal utilisation: poaching

KWS' war against poaching, particularly in the early 1990s, though considered very successful, did not by any means endear wildlife conservation to the local communities. As argued by Loefler (1998 21: 2), '…amid what may be termed as global jubilation for successful anti-poaching, it was overlooked that many small men were killed on the spot or jailed and no big men got caught.'[10] No single senior civil servant, a single officer of the uniformed forces, a single senior politician was brought to book. None of the former wildlife chiefs have ever

[9] Wildlife utilisation guidelines and rules were issued on 1 October 2000 and there is an ongoing consultancy to evaluate cropping. Mr James Kairo of Moi University's Wildlife Department is the main contact person for the consultancy.

[10] Conservationists and environmentalists, especially the lobby groups and some staff of KWS, tend to overlook this. The extermination of poachers in some local communities had a very negative impact and constitutes one of the reasons for people's negative attitude towards KWS and wildlife conservation.

been publicly investigated or prosecuted.[11] The rangers during this time developed an aura of heroism and have been harassing the local communities and sometimes whipping them for crimes such as collecting firewood from the park. Meanwhile, some crimes such as trespass, the collection of firewood, honey harvesting and grazing in the park in the eyes of local communities are not crimes, but traditional or customary rights. To date, the sight of uniformed rangers or uniformed community conservation officers triggers bitter memories among some local communities living near conservation areas.

Problem animal control

Because of increasing conflicts between people and animals, KWS is endeavouring to improve its problem animal management capability. In 1993, a strong team of PAC rangers was assigned to training and local operations in Laikipia and Samburu, where they significantly reduced elephant damage. In Narok district, KWS shot 27 elephants, 3,799 buffaloes and seven lions to protect human life and property (KWS 1994). In August 1993, KWS spent over Ksh. 1 million driving a herd of nearly 200 elephants from Narok town towards Loita forest. In Kajiado district, KWS provided training and paid the salaries of game scouts recruited by the local community for problem animal control and other conservation-related duties (KWS 1994). Problem animal control is an unavoidable operation, which was also carried out by WCMD, but has never been effective and efficient (KWS 1996). For instance, community game scouting in Maktau is currently not operational, due to several factors, particularly funding. The ineffectiveness and inefficiency of problem animal control has generated criticism by the local communities, who sometimes accuse KWS of lack of commitment and assigning a low priority to this responsibility when compared with the 'war against poaching' in the early 1990s. KWS lacks resources for mobility and even human resources in the field to deal with problem animals.[12]

Translocation and driving away problem animals with the use of helicopters are the latest methods of dealing with problem animals such as elephants. However, they are not new endeavours, as trapping and translocation of problem animals, particularly the carnivores, and driving away some animals by scaring them has been done before. Currently, elephants are being moved from 'high conflict areas' to areas where there are fewer elephants, which does not necessarily imply fewer conflicts. Such a case has been noted when KWS proposed translocation of 6,000 elephants from Laikipia to Meru National Park in November 2001. It was reported that the Meru residents, through their civic leaders, opposed the translocation.[13]

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[11] Dr Imre Loefler (1998) in his article 'Circling vultures' in Swara 21(2) noted this with antipathy, leaving no doubts that at least some 'big fish' were involved.

[12] The Voi Member of Parliament, Basil Mwakiringo, argued that the KWS Tsavo East headquarters in Voi has no means of transport and that it is of no assistance to communities during human-wildlife conflict emergencies. He further indicated that 'there are only 15 vehicles grounded there, with minor repairs to be done. The only vehicle operating can be driven for 38 km for the KWS official to meet the District Commissioner, but not for the five kilometres where there is an emergency'. This was after 54 sheep were killed in Taita on Tuesday 30 April 2002. Standard Online Edition, Saturday 4 May 2002.

[13] East Africa Standard, Online Edition Saturday 24 November 2001, 'Meru residents oppose translocation of jumbos', report by Lawrence Kinoti and Philip Mwakio. The opposition was led by civic leaders of Kuguru, Kindani, Kwawiru and Thimbiro, who argued that translocation will aggravate human-wildlife conflicts; a problem they said is already out of control.

Driving away elephants using helicopters has also been criticised, because of the contrast between KWS spending financial resources on such an expensive undertaking for elephants, while it has no money for the compensation of damage caused by wildlife nor is capable of maintaining the revenues and the Wildlife for Development Fund endeavours. Among other stakeholders, such as sanctuary owners, problem animal control also has negative implications in some instances. For instance, the Taita Hill sanctuary management complained about the killing of five lions in the year 2000. KWS rangers shot these lions after one of them crossed the fence. The management argued that the lions killed 'resided in and belonged to' the sanctuary and that it was not consulted before they were killed.[14]

Fencing

In some areas of 'severe conflict', KWS has erected fences as an effective solution. Fence construction and maintenance is costly and requires community cooperation. KWS convinced the donor community to support a large-scale fencing programme. Each fence required preparatory community negotiations, technical design and an environmental impact assessment (KWS 1994). KWS and partner NGOs and donors have erected over 400 km of fencing in twelve parts of the country at a cost of over Ksh. 70 million. Fencing projects are still being implemented in various areas, such as in the Aberdares and Meru. Fencing has considerably reduced human-wildlife conflict in critical areas; but there may be a need for evaluation in order to improve their efficiency. In Taita the two fences – the 30 km Bura-Maktau fence and the 30 km Ndara-Ndii fence initially reduced human-wildlife conflict, but now the trend seems to be worsening as more and more elephants and other animals find their way to cropland in Maktau, Mbololo and Tausa areas.[15] Fencing has also been a controversial issue among stakeholders. Some conservationists have argued against it, mainly because of fragmenting and creating islands of conservation areas, connoted as 'wildlife mega zoos'. In other situations, the location of the fence has been very controversial, mainly due to unclear land ownership. For instance, the construction of the Bura-Maktau fence (Plate 6) was very controversial, due to a border conflict between the Taita Hilton sanctuary and local communities.

Compensation

The question of compensation of property and injuries and/or deaths caused by wildlife has been a thorny issue and of great concern to KWS and other stakeholders. Since KWS is in charge of wildlife conservation and management, the local communities, among other stakeholders, assume that even compensation is under KWS. In reality, compensation is in the docket of the ministry in charge of tourism and wildlife, while the treasury makes payment for compensation. It is the responsibility of District Wildlife Compensation Committees (DWCC) set up by law in every district to deliberate on compensation claims. The District Commis-

[14] Interviews with Dr Tim Rowlandson 3 March 2001.

[15] On 5 August 2002, Mr Godfrey Mshamba Mwamburi was attacked and killed by a rogue elephant in Paraga, Tausa Division. The area Community Wildlife Officer, Mr James ole Perrio, and local Chief, Mr Joseph Mchalongo, indicated that the elephant was from Tsavo East. Earlier that year, an elephant killed a teenager in Ndii near Voi. For these and other cases among many involving crop foraging and trampling, the elephants are believed to have circumvented the Mtito Andei-Voi fence (Daily Nation on the web, Nationaudio Tuesday 6 August 6 2002).

sioner chairs it, while members include Members of Parliament (MPs) and representatives from the police, KWS and others. These committees at district level were processing applications for compensation even before the WCMD and Game Department were merged to form KWS. Compensation money is vetted by the Parliament for the ministry in charge of wildlife conservation. Issues such as what is to be compensated, to what extent and through which procedures have contributed to management conflicts. Initially, compensation was for most damage caused by wildlife such as crop destruction, human injury and death. Compensation for crops was introduced the late 1970s and was abolished by parliament in 1990, because it was out of control, deeply corrupt and unaffordable (Western 1994).[16] Compensation now is only for human death and amounts to Ksh. 30,000 (US$ 385), which is considered extremely low to help the bereaved families recover from loss, for instance, of a breadwinner. There has been a proposal to increase the amount to Ksh. 1 million (US$ 12,820) for human death. The decision to increase compensation rates is with the Parliament and the ministry in charge of wildlife and not KWS. It is precisely for this reason that the President in 1993 directed the government to review the compensation issue (KWS, 1994). However, the proposal to increase compensation for human death to Ksh. 1 million was done through a Bill in Parliament, which failed to go through. The procedures for compensation are said to be cumbersome, the travelling costs for people to follow-up the claim sometimes being higher than the compensation itself.

Even though compensation is not KWS's legal responsibility, it has been involved in charity for the neighbouring communities. For instance, it has provided assistance on several occasions, especially in the form of transport for the injured to hospital. It has also provided food relief for areas adjacent to National Parks, which have been affected by drought and crop damage by wildlife. Districts that have benefited from this support are Kwale, Laikipia, Nyeri and Taita Taveta (KWS 1994). However, the local communities do not regard this as charity, but as a responsibility not well done.

The Kenya Wildlife Service management strategies

Politics and intrigues[17]

The management approach that is followed by agencies tends to align with and may be strongly influenced by the vision of individuals working or leading the agencies (Cannibal *et*

[16] David Western (1994) in Swara 17(6).

[17] The discussions on this topic, particularly on the politics of KWS, are mainly drawn from various articles contained in Swara Magazine published by the East African Wild Life Society, Leakey R and Morell V (2001) and from informal discussions with various individual conservationists and employees of KWS, both in the field (Taita, in particular) and at the Nairobi headquarters. The specific articles include those of economist and businessman commentator of Kenya's dailies, Robert Shaw, ('Crisis at KWS' in Swara 20(6) and 21(1)); former KWS Director, David Western ('Crisis management: has KWS failed to carry out is mandate or is it simply labouring under unrealistic expectations' in Swara 21(2)) responding to Robert Shaw's critique in Swara 21(1); and Vice-Chairman of the East African Wild Life Society, Imre Loefler ('Circling vultures' in Swara 21(2), 1998). Other people who agitatedly responded to Robert Shaw's articles in Swara 21(2) include Errol Trzebinki (a shareholder of the Mwalunganze Community Wildlife Sanctuary), Nils D. Christoffersen (Director of the Washington-based Africa Resources Trust) and R. Michael Wright (President of the Washington-based African Wildlife Foundation).

al. 2001: 147). Therefore, it is important to discuss the main ideologies-based individuals who led Kenya Wildlife Service.

When KWS came into legal existence in 1990, the Head of State appointed Dr Richard Leakey as its director. However, Leakey and Morell (2001 p. 125), note that Leakey does not think that many in the NGO wildlife community were particularly happy when he assumed the position at wildlife, and that most people regarded the position as little more than a honorary title. He inherited a devastated legacy of the former WCMD and Game Department. Poaching was rife and wildlife habitats, including conservation areas, were diminishing. Infrastructure and staff motivation were at the lowest ebb ever experienced and it may be argued that this was the main local recipe for poaching. KWS, a significantly autonomous parastatal with a paramilitary force answerable only to the director, won the anti-poaching battle of the late 1980s by literally exterminating the poachers on the ground, particularly in Tsavo National Park (East and West). The management also persuaded the Head of State to torch ivory that had been recovered from poachers or obtained from dead elephants (Leakey and Morell 2001). This was a public relations action of the highest order (Plate 8). This action contributed significantly to wildlife conservation in Kenya. It stunned the poachers and the ivory market (Leakey and Morell 2001, p. 94), please the president, as he enjoyed worldwide approval of the ivory burning and, in return, provided more political support in the formation and activities of KWS, as well as informing the world about Kenya's commitment to conservation. It helped to raise funds in unprecedented amounts. These funds, in turn, enabled KWS to recruit, train, equip and lead a highly motivated and reasonably well-paid paramilitary force. KWS destroyed the ivory poachers and saved the Kenyan elephants and few remaining rhinos. It also ensured the security of tourists in the parks. In turn, this gave a boost to the tourism industry, which relies heavily on wildlife viewing. Indeed, the fight against poaching was a noteworthy achievement and won KWS and its staff a lot of praise and admiration among donors and conservation NGOs.

The funds that KWS collected were exempt from direct government control. The KWS was in full control and this was probably the most commendable achievement, particularly in the mire of corruption in the country. However, it did not endear KWS to the establishment. During the same period, KWS attempted to extend its jurisdiction to the game reserves on the basis of its mandate to manage all wildlife.[18] This did not anchor well, though KWS succeeded in changing the title from game reserves to national reserves a (title dropped in 1971). It caused ripples among civic leaders and the respective local authorities, particularly in Masai Mara and Samburu. KWS also attempted to extend its control to the indigenous forest reserves through an ecologically based logical notion that wildlife includes plants and, particularly, trees. It was argued that KWS should be in charge of indigenous forests,[19] which had been under the Forest Department. The Forest Department, equivalent (in terms of capacity) to KWS' predecessor WCMD in the 1980s, is riddled with a multiplicity of problems. Infrastructure is dilapidated and staff motivation, as in most public sectors, is low; a true recipe for the poaching of trees and even 'grabbing' and excision of forestland. KWS'

[18] This is a conflict over entitlement rights, particularly over land. Questions may indeed arise pertaining to the rights to control wildlife and income obtained through tourism in areas such as national reserves.

[19] The whole of Arabuko Sakoke forest gazetted as national park in 1990. For Mt Kenya National Park, jurisdictions expanded late 2000 to cover the forest, which had been under the Forest Department until then.

move to gain control over the indigenous forests united the sawmilling industry, tree-chopping civil servants, forestland grabbers and the *cannabis*-growing fraternity against it. During the same period, though not KWS' legal responsibility, compensation for wildlife-related losses were discontinued due to corruption and misuse by people making claims, even if they had not experienced damage at all. This made the genuine claimants – the people living around the parks – disgruntled and anti-wildlife (Leakey and Morell 2001, p. 123), hence easily vulnerable to political incitements.

The grievances against KWS mounted in proportion to the efficiency of its law enforcement. When Leakey tabled his resignation letter at the end of March 1994, the damage to KWS was inestimable.[20] However, it is not clear what the circumstances were that led to the resignation of the director. However, as Leaky and Morell (2001) imply and as Imre Loefler puts it '…it is that the director would have wanted to show his clout, but he was hamstrung through political pressure.' Maybe he resigned when it became obvious that there would be financial and management difficulties, but then it must have been because of ill-judged ambitions. The other reasons may be external, relating to KWS' ability to alienate powerful selfish interests. This was compounded by fear and jealousy for maintaining a paramilitary force that was ubiquitous, better armed than the police, in possession of a better communication network and with mobility comparable to that of the army, and was singularly devoted to its commander, the director[21].

David Western replaced Richard Leakey as the director of KWS and remained in that position until 1998. However, as argued by Loefler (1998), KWS had been a target of ill will from the very beginning, which had culminated in the resignation of the former director. Therefore, the political establishment had to ensure that KWS remained under its control and that it would seek political patronage. Thus, the new director was not expected to demonstrate the impudence of his predecessor. In the context of KWS' institutional politics and patronages, some KWS staff, whose loyalty was to their chief and not to the cause, concurred with the call 'Western is not Leakey'. This was treated as a profound insight and humour. It was carried around the world, finding an echo with international NGOs and donors (Loefler 1998). Certainly, most ENGOs and donors did not welcome the dilution of KWS' autonomy through political infringements, common in most failing government corporations and parastatals.

As regards its conservation politics, KWS under the new director was accused, both locally and internationally, of three sets of failures. First, in the view of different stakeholders, KWS under Dr Western had demonstrated limited capacity to correct some malfunctions of KWS from the previous directorship period. The most critical in this respect were the conflicts with various local government authorities and the Forest Department over KWS' attempts to take over the Masai Mara and Samburu national reserves and some forest reserves. Other

[20] 'KWS and other stakeholders have to live with the Leakey myth, and as with any myth centred on a man, particularly a living man, this one, too, suffers from a loss of proportion. Infatuation is an affliction whose symptoms are short sightedness, bad memory and, in this case, bilious temper' (Imre Loefler in Swara 21(2), 1998).

[21] Leakey and Morell (2001, p. 240) give an account of when Dr. Leakey was summoned in August 1992 by the then head of Civil Service (Prof. Mbithi), who accused him of involvement in opposition politics and indicated that many people in the government were afraid of KWS because of its strength in intelligence, communication, and mobility, not to mention its national and international reputation, access to enormous funds, and the loyalty of the rangers.

malfunctions included, in the views of conservationists, the failure to keep cattle out of Tsavo[22] and the failure to protect local communities from wildlife menace. In the eyes of local communities, there is a lack of benefits, among other things. Second, the new director was accused of doing all sort of things his predecessor would never have dreamed of, such as reorganising the service into regions,[23] talking about communities and 'parks beyond parks' (*i.e.* community-based wildlife management outside the parks), and spending money on an advertising campaign. Chief among these complaints is his overwhelming support for consumptive utilisation – cropping and hunting. As it happens, licensed cropping also took place during the former director's tenure (Loefler 1998).[24] The third set of accusations against the director concerns areas where his predecessor apparently did so well, especially fundraising and the anti-poaching campaign. Indeed KWS, did not have the same kind and amount of funds during Western's tenure, and had to scale down its operations, rent out its new offices and take other radical measures. According to Loefler, the reason why the donors could not give funds was firstly because 'Western is not Leakey' and because the donors were told years ago that KWS would be self-supporting.

It was claimed that poaching was increasing, that elephants and rhinos were being poached and that KWS was either lying about the figures or did not know the truth. This issue is not clear yet. However, there are reasons to believe that poaching, particularly of elephants, resumed in 1994 and is becoming rife. Some of the reasons may include the fact that there are many more people now than there were ten years ago; that they are much more hungry and desperate; that there are many more guns; that communication is worse; and that law enforcement is much more wanting (Western 1998). In addition, KWS simply does not have the money and paramilitary strength it had a decade ago. Nonetheless, though these reasons seem obvious and there is evidence of poaching, the reality in the field before Western left the office may have been exaggerated. The contention may have been propaganda by Western's distracters and those opposed to game cropping, argues Loefler (1998).

Some Kenyan-based conservationist stakeholders were also discontented with Western's approach in heading the KWS. The 1997 newsletter of the David Sheldrick Wildlife Trust and Robert Shaw's Insight in Swara 21(1) depicted a waning picture of KWS. Both publications with a wide circulation overseas may have made funding even more difficult, whilst locally they added to the demoralisation of the staff and other stakeholders. The politicians largely remain quiet. However, according to Loefler, if these stakeholders had joined the chorus of accusers, their action could have been interpreted to mean that they were unhappy with KWS because they could not get land, trees, licences, concessions, money and privileges. This would have exposed the fact that KWS, for all its faults, is not just another corrupt and toothless adjunct of the government. Indeed, as speculated by Loefler, they remained quiet and let the conservationists – mainly European interests – destroy their own baby. Nonetheless, after four years, Western left the office in October 1998 and Leakey came back in

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[22] See 'The Sahel in Tsavo' in *Swara* 9(2), 1986.

[23] These regions failed to work through lack of support and were viewed in the context of federalism, an issue that has been controversial in the review of Kenya's constitution. However, the coastal region currently exists (discussions with KWS officers at the regional office in Mombasa, June 2000).

[24] Loefler believes that, if Richard Leakey had stayed on and succeeded in stamping out corruption in the wildlife sector, trophy hunting would already have been re-introduced and no one would be suggesting that the director pandered to certain Laikipia landowners.

September 1998 for a second stint. This time, it turned out that the office was a 'stepping stone' to a higher office as he was appointed Head of the Civil Service and Secretary to the Cabinet in July 1999. For the subsequent incumbent Dr Nehemiah Rotich, the term was less than a year and how he left the office while on leave in November 2001 is unclear. His deputy, Joe Kioko, replaced him and later after one year, in November 2002 he retired and was replace by former director of East Africa office of the International Fund for Animal Welfare in Nairobi Michael Wamithi[25]. Barely six months in office, in May 2003, Wamithi was accused of gross insubordination and was fired as the rift between the Government and Dr Richard Leakey intensified. It was announced that Dr. John Waithaka would take over in an acting capacity. The next day it was announced that yet another person, Joseph Mutie, from the Ministry of Environment and Natural Resources had been installed as acting director. Not much prediction can be made about KWS now, considering the intrigues and contradictions witnessed in running it since its formation, but there is no doubt that the trend has been going downwards –from a strong parastatal in 1990 to a weak one, almost similar to a government department it used to be before 1990.

Poaching seems to be increasing. By December 2001, the first poaching occurred within Tsavo National Park in eight years when four rhinos were killed. On 28 March 2002, KWS reported a slaughter of ten elephants in Tsavo East National Park and 15 in Samburu Game Reserve. Currently, KWS is said to be relying on government handouts.[26] Certainly, to reverse the trend, KWS needs a boost, particularly in harnessing the support of the whole spectrum of stakeholders from the local to international level, including the would-be-poachers.

These intrigues show up the structural flaw of KWS. Kenya Wildlife Service has been wracked mainly by politically inspired and instigated decisions. As a result, its history has been an erratic one and its performance wanting. The challenges for the government, and the Ministry for Environment and Natural Resources are to break these traits. This cannot be done by just selectively replacing people, particularly the directors and the board. The Wildlife (Conservation and Management) Revised 1980 (Amendment) Act must be amended accordingly. The most pertinent sections to consider are 3B to do with "The Board of Trustees" and 3C to do with the "Appointment of the Director". As with a number of parastatals in Kenya, there is too much over-representation by government (seven) on the board. Secondly the appointment of "other trustees" is rather narrow, particularly as regards ensuring a diverse mix of skills and experience: "Not more than six other trustees to be appointed by the Minister from amongst persons who are conversant with nature conservation in all its aspects". Government representation is important, but can easily and effectively be carried out with fewer representatives than at present. Much more use should be made of the non-government trustees. For instance, key stakeholders such as the tourism industry should

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[25] In an article in the Daily Nation of 12 December 2001 ('Is KWS a relevant outfit?'), John Mbaria writes: 'The suspension of the Kenya Wildlife Service Director, Mr Nehemiah Rotich, brings to public attention the intrigues and contradictions in the wildlife body'.

[26] Forest Conservation Portal (http://forest.org/articles/reader.asp?linkid=6775, 17 January 2002, 'Kenya Wildlife Service goes broke, elephants at risk.' This article reports that KWS is relying on government handouts to survive. The former director, Joe Kioko, admitted that KWS was facing serious revenue problems and needs about 2,500 rangers compared to the number of about 1,000 rangers by then. By the year 2002, KWS was one of the seven departments in the Office of the President headed by Hon. Sharif Nassir. After the new government was elected, KWS was put under the docket of the Ministry of Environment and Natural Resources.

automatically be represented on the board. This will make the KWS Board more professional, issue-driven and less vulnerable to the whims of politicians and other powerful lobbies whose interest is not in line with wildlife conservation. Another amendment could be to make the Board responsible for the appointment of the Director, as opposed to the President. The current government, through the ministry, has to break the influence of the previous power brokers and make KWS a sustainable institution, where appointments are made on the basis of merit rather than whom you know or wish to put in place.

Management approach

Leakey, along with many of Kenya's conservationists, takes exception to the claim that over 70% of Kenya's wildlife resides outside the national parks. Leakey believes it is the reverse, with 70% of the wild animals in the park and 30% outside – particularly when considering only the wild animals the tourists come to see. However, this is an ecological issue, which is highly dynamic, depending on seasons and climatic cycles. Nonetheless, it is Leakey's position that the national parks are more important for the long-term survival of those animals than the surrounding lands, and this is where his management approach diverges most sharply from Western's. Describing his difference with Western when he ran KWS, Leakey says:

> It was clear to me that the national park, which existed in law and was respected in the country as impenetrable boundaries, should be our first priority. I did not see them, as I have been accused of, as ecological islands, either, but as legal entities that could, with proper management, be retained for the public interest indefinitely, and because tourism in those areas could be made ultimately to pay for the parks, the parks could have assured the survival of most of Kenya's biodiversity, at least on a species-count basis (*Swara* 17(6): 6, November/December 1994; See also Leakey and Morell 2001 p. 132).

Further, referring to Western's approach, Leakey in his book, wildlife wars (2001 p. 226) notes that

> … the Maasai may in fact have lives harmoniously with the wildlife in 1800s, when there were far fewer people about and when Maasai did not own fenced wheat farms or inoculated their cattle against disease. But time had changed, and Western's idea struck me as unrealistic and anachronistic.

Western grew up in southern Tanzania, a place he describes as more remote than Tsavo, but there were always a few people there, no matter how vast the land, and the people never understood the concept of pure wilderness. To them nature and people go together. Hence, people and nature have to be compatible. In areas where elephants and rhino were poached, there were few, if any, people. Today, poaching is almost non-existent yet there are about five times more people in Kenya than there were 100 years ago. To Western, the number of people is not the greatest danger to wildlife conservation, but the attitude that wildlife is the enemy, because it will disappear, no matter how many or how few people there are. In this respect, he makes reference to America and Europe. In the Pleistocene period in North America, only a handful of Amerindians knocked off the very largest of mammals and the same happened in Europe. However, if wildlife is seen as having value, then there can be high-density population living side-by-side with wildlife.

Western's management approach, in view of some stakeholders, was that the parks were relatively 'unimportant' and that he attached more importance to the people around the parks, who needed to be made beneficiaries of their own wildlife outside the parks. For this reason, he created the concept of 'parks beyond parks'. According to Leakey, the problem of 'parks beyond parks' is that the focus is not the 8% of the country set aside as parks or reserves, but the 92% that belong to the people. He argued that what people want from their land is money, and what they do not want is to commit that money to conservation. Western argued back that these people and communities will commit that money if they can see a return from that commitment, either through revenue sharing of gate receipts and lodge earnings, or returns from the so-called consumptive use of wildlife that includes the sale of meat, hide and ivory, and also licences and fees paid by hunters. Indeed, Western backed a wildlife hunting pilot project to establish whether the practice would help to conserve wild animals threatened by overpopulation. He was quoted saying, 'if hunting will improve conservation outside the national parks, that is fine with us' (*Swara* 17(6): 6). However, he indicated that KWS would oppose hunting of endangered species particularly, the big five: elephant, rhinoceros, lion leopard and buffalo.[27]

Western is regarded as one of the worldwide leaders, if not the worldwide leader, of the community-based conservation movement and, since taking over KWS as director, he worked to implement his ideas into real-life policies. Since much of his research in his early years was spent in Amboseli, he introduced policies there to include the Maasai who live outside the park boundaries in park management. Nonetheless, whatever the case, the 8% of the country set aside as parks or reserves and the 92% that belong to the people are the two sides of the same coin in Kenya's wildlife management. Legally, all wildlife in 100% of the area in Kenya is under KWS and therefore the management should seek to strike a balance between the imperatives of protected areas and areas outside the protected areas. Moreover, wildlife knows no boundaries. Indeed, community-based conservation as advocated by Western, first and foremost aims at maintaining the gazetted conservation areas. Therefore focussing on conservation outside conservation areas does not imply viewing these areas (gazetted conservation areas) as relatively 'unimportant', or as areas for local people to wander, freely but more important requiring the support of all stakeholders, including the said local people.

The Protected Area Wildlife Service Programme (PAWS)

PAWS focused on rehabilitating a few commercially viable parks destroyed by years of mismanagement in the 1980s. It tackled the poaching of elephants and rhino and it strengthened KWS' institutional capacity in planning, education and research. In addition, it financed pilot community wildlife projects, particularly the Golini-Mwaluganje community wildlife project at the foot of Shimba Hills in Kwale District (Cocheba *et al.* 1998). It also aimed at defending the lives and property of people who live with the three quarters of Kenya's wildlife[28] which is found

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[27] Daily Nation, Wednesday 26 March 1997, 'Wildlife body backs hunting' by Chege Mbitiru. See more details in Swara 17(6): 6, Director of KWS, David Western interviewed by Esmond Bradley Martin and Louisa Lockwood.

[28] It is questionable that the notion of 'three quarters of wildlife live with people outside the park' is a concern of the PAWS project, which came up during Leakey's tenure, yet he claims not to believe in it. It is not clear who wrote the PAWS proposal. However, it is believed that a certain consultancy was involved; not

outside the park, but it was stated that it should be carried out using 'minimum human and financial resource.'

PAWS' most ambitious goal was achieving financial self-sufficiency by the year 1996 through trimming bureaucracy and developing the full commercial potential of tourism. Projections were made that KWS would generate US$ 8 million surplus funds against bad times. PAWS acknowledged that lower tourism growth would produce a financial deficit. However, it did not anticipate or plan for the almost total collapse of the Kenyan tourist industry.

A comprehensive mid- term evaluation of PAWS by donors in 1996, endorsed by yet another review in November 1997, stated that KWS had largely achieved PAWS' objectives of controlling poaching and restoring the most visited parks.[29] Elephant numbers by then had risen to 27,000 from 19,000 in 1989 and rhino to nearly 450 from under 330 a decade ago. Between the 1970s and 1980s, there was 30-50% loss of wildlife. However, from the late 1980s to 1990s wildlife population started stabilising. Some species increased and habitats improved in areas where landowners were involved and supported wildlife conservation, while losses were evident in areas where they did not (Western 1998). Poaching rates, particularly of elephants, are low, yet half of the elephant population is outside the park and there is more land-use pressure, more guns and banditry than ever before. Indeed, the success in controlling poaching is partly through the effort of landowners and community scouts protecting 'their' elephants. Improvement had also been made on institutional development and a few protected areas were created (Western 1998).

Donors acknowledged that financial sustainability is not achievable, yet KWS lived well beyond its means from the onset and, worse, PAWS believed that it would achieve financial self-sufficiency by the year 1996. In 1992, the operating balance was US$ 0.4 million surplus. It jumped to US$ 6.8 million deficit in 1993 before Western became the director. It was simply a losing battle to try to control this deficit, with a stagnating rather than growing tourism industry (Western 1998). Moreover, the donor and treasury stopped their generous support of KWS' operations and maintenance as scheduled, based on the misplaced and suicidal goal of PAWS to achieve financial self-sufficiency.

Western criticised Leakey's original intentions to fence the national parks at a cost of US$ 100 million. He argued that the cost of maintaining the fence alone would absorb most of KWS' recurrent income. In addition, Western argued that this was not ecologically suitable and parks would become hyper-managed mega-zoos, which would attract few, if any, visitors while, at the same time, ten thousands of wild animals would die. For conservation and ecological purposes, Kenya must win more space for wildlife by making wildlife an asset rather than a liability to landowners. This approach originated in Kenya and is now widely pursued around the world. 'Every acre won outside the park is more ground for wildlife,' argues Western (1998). Equally crucial, this approach widens the scope for the beleaguered

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excluding both Western's and Leakey's input. There are arguments that Western contributed substantially in developing KWS policies during Leakey's tenure.

[29] This is a negative approach, as KWS is mandated to manage and conserve wildlife in Kenya as a national heritage, irrespective of where it occurs and whether there are tourists or not. If it is to develop the most visited parks, then it must be at the expense of less visited parks. If this is the case, the situation for the wildlife outside the parks would not be favourable and wildlife conservation in Kenya would appear to be only for touristic reasons.

tourist industry and spreads profit more fairly, as landowners, not just national or local government, realise benefits.[30]

The donors, through PAWS, called for the development of a new wildlife policy and institutional restructuring. When Western took over as the director, KWS launched an independent five-person commission, which consulted widely throughout Kenya on the problems and prospects for wildlife. The results of the report (KWS 1994) were extensively discussed locally and abroad. Based on this report, the new policy focused on three goals: conserving biodiversity, forming partnerships[31] to do so, and promoting nature tourism. Subsequently, KWS organised itself around these three goals, aiming to be effective and financially efficient. Thus, in the context of the problems KWS was facing, the alterations listed in Box 10.2 were made.

Box 10.2
KWS reorganisation in 1996

- Slashing the size of the top-heavy headquarters.
- Regionalising and decentralising activities to put more resources and decisions in the hands of the field staff
- Raising efficiency through training programmes.
- Reconciling the salary structure to phase out the distortions introduced in 1993 when 55 staff, many of them expatriates, were paid large tax-free PAWS salaries. The reconciliation raised the lower end salaries disproportionately, especially for rangers.
- Reducing the number of staff from 4,100 to 2,875. Unjustifiable field stations were also closed and their staff and resources redeployed to park and prime wildlife areas.
- Establishment of a park ticket inspection unit and internal fraud investigations to cut corruption.
- Park for Kenya campaign aimed at encouraging domestic tourism as well as ensuring national support, which is vital for the future of the parks.

In the context of these austerity measures, the operating deficit was set to drop by 83% from US$ 10 million in 1996 to US$ 1.7 million in 1997. Unfortunately, at the same time, the number of tourists had decreased to half that of 1991. Nonetheless, KWS undertook too much change too fast, particularly in cutting the staff and institutional overhaul. However, the greatest problem stemmed from misplaced financial assumptions and the slump in tourism.

Stakeholders

Clearly, the conflicts in the management of KWS affairs and the management and conservation of wildlife by KWS are centred on stakeholders' interests. These conflicts constitute 'person-to-person' disputes between stakeholders with polarised group or self-interests (KWS 1994). Often, these disputes derive from competition between groups for resources and dislike of new policies that may affect the power balance or direct benefit away from or towards certain groups. The attitude among stakeholders also differs significantly. For instance, the

[30] Discussions with Mr Koikai Oloitiptip of the National Landowners Wildlife Forum and several KWS staff indicate that the forum had support even from donors (particularly UNDP) and that it operated closely with KWS.

[31] KWS defines 'partnerships' (Wildlife Policy 1996) as: 'an affiliation between the competent authority, stakeholders and other individuals or groups convened for the purpose of conserving and managing biodiversity within specified areas'.

attitude of rural communities in Kenya towards elephant conservation contrasts starkly with that of many people from the North. Rural communities in Kenya living among the elephants incur all the costs of allowing elephants to exist in the wild, but the benefits accrue largely to people from the North; mainly tourists, who view elephants as 'an important conservation symbol with high aesthetic and emotional appeal' (Kreuter and Simmons 1995:,149). People from the North obtain 'existence value' from the elephants, a benefit deriving from the knowledge that elephants continue to exist in the wild, even if the Northerners in question will never personally have any contact with them (Kreuter and Simmons 1995:, 149; 't Sas-Rolfes 1998: 17).

The Kenya Wildlife Service identified and recognised the importance of stakeholders[32] in wildlife biodiversity conservation in the endeavours to mobilise 'partnerships'.[33] However, this is not without pressure since, when it comes to KWS, virtually everyone is a stakeholder. This is mainly because of the position wildlife occupies in economic development and the related costs of conservation. Indeed, every tourist in Kenya is viewed as interested in wildlife viewing more than anything else in the country. The stakeholders range from the government, non-governmental organisations, the politicians, large and small-scale landowners, the people who live next to the parks and reserves, the tourism industry, conservationists and environmentalists, KWS staff, the taxpayers, tourists and donors, to the poachers and corrupt – who can be found in all the above categories. All these stakeholders have different interests and perceptions. As a result, it makes it nearly impossible for KWS to fulfil its principal function of safeguarding Kenya's wildlife and its multifarious habitats. Ironically, this being a major handicap in wildlife conservation, not much has been done to identify the stakeholders. Instead, KWS uses a strong public relations department to deal with some stakeholders.

Forest conservation and management-related conflicts

The case of forest management-related conflict is simpler than that of wildlife management, but requires urgent attention. The main reason is that there are fewer conflicts between forest management and the local people other than those related to wildlife residing within the forests that fall under wildlife conservation. However, there are several serious management-related conflicts, which are related to local communities and institutional structures, based on policy and legal frameworks.

Community participation efforts

In Kenya, not much has been done to involve local communities in forest conservation (Awiti and Nkako 2003). However, there are several propositions on community participation in

[32] KWS defines stakeholders as 'private individuals or groups having a vested interest in the conservation issues relating to a particular area' (Wildlife Policy 1996).

[33] Unlike the KWS definition of stakeholders (footnote 30), partnerships in this research refer to the affiliation between various stakeholders who are directly or indirectly affected positively or negatively, including government bodies, private individuals and groups convened for the purpose of conserving and managing biodiversity within a specific area. The government body in charge of conservation of biodiversity (wildlife or forest) is also considered to be a 'main partner' or a facilitator who creates a conducive environment for the stakeholders to conserve biodiversity.

forest resource management (Mugaka 1996; Lynch 1998; GEF-CBBP 1999). Most community efforts are mainly within specific forest areas and usually initiated by non-governmental organisations. In Kenya, traditional management of forest resources occurs in the trust lands, but has become obsolete through erosion by current values. However, the government and, specifically, the Forest Department has realised that its paternalistic attitudes have been ineffective in achieving its forestry objectives and that it does not have the resources and capability to manage single-handedly Kenya's forest estates. Instead, it needs to engender the support of forest-adjacent communities who depend on the forest resources and who may have developed efficient mechanisms for sustainable resource management (Ongugo and Mwangi 1997). The Forest Master Plan proposes a wider use of traditional sustainable practices. The revised forest policy also articulates the need to respect traditional rights and practices, and forest-related cultural values of forest-adjacent and forest-dwelling communities (RoK/MENR 1994a). However, as in the case of wildlife management, other stakeholders than the government stakeholders, particularly the local communities, can be legally involved in forest management only when the Forest Bill 2000 is enacted to articulate the involvement of these stakeholders.

Forest Department management strategies

Several institutions are involved in forest conservation and management. These institutions are stakeholders and often conflict over interest and control. The main institutions involved in forest management include the Forest Department, local county councils, the Kenya Wildlife Service and the National Museums of Kenya. However, the overall institution with a jurisdiction mandate over forest reserves is the Forest Department. Other important stakeholders involved in the management include the Kenya Forestry Research Institute and relevant learning institutions such as universities and colleges. The role of each institution and the coordination is not clear and sometimes creates confusion among the local communities and other stakeholders. A clear case is when KWS, through the Forest Conservation Programme established in 1991, attempted to take control of the management of indigenous forest reserves. In a strategy to secure conservation of critically threatened forests, the government gave KWS added responsibility to manage Mt. Kenya forest. To enable this, Mt. Kenya was gazetted as a national reserve to provide KWS with a legal mandate to manage the forest. To avoid conflicts with the Forest Department, however, this has since been moderated, using a memorandum of understanding giving KWS rights to manage specific forests.

Most management-related conflicts arise mainly from the existing tenure regime. The change of tenure from trust land to government land for gazetting has been a problem and controversial, as has been illustrated in the case of Taita Hill in Chapter 8. The tenure change has created serious management conflicts, a situation that has resulted in serious loss of forest land. Also, the forest areas have not been clearly demarcated, giving opportunities for encroachment. In some situations, there have been conflicts with local communities over forest boundaries. Such cases have been experienced in Mbololo forest and elsewhere.

Estimates show that 2.9 million people in Kenya, almost 10% of the population, live in the areas adjacent to indigenous forests and directly depend on forest resources for part of their livelihoods and survival (Blackett 1994). Population increase implies that the number of users and uses has expanded. This is compounded by political interference in forest conservation

and management. Forest lands have often been used as a 'carrot' to reward and entice sympathisers and supporters of the political mainstream in the government of the day. This has led to irregular forest land excisions and allocations, and subsequent development of settlements whose sustainability is not guaranteed. This is the case particularly where allocations are not backed by any legislation and often result in conflicts and irregularities in the implementation of laws governing forest use. Nonetheless, forest excisions may be legal, although quite often they are characterised by irregular procedures through which land is first allocated and sometimes put into use even before degazetting. This makes the whole process illegal. In such situations, the Forest Department is seen as a toothless adjunct of the government without any control of its jurisdiction. This is similar to the case of the KWS predecessor, WCMD, whose tenure in the 1980s was characterised by massive wildlife poaching.

These management conflicts are rooted in policy and legal frameworks that are not in line with the changing demands of various stakeholders. The frameworks are based on protectionism and do not endear forest conservation to adjacent local communities. Neither do they acknowledge the involvement of other stakeholders. As a result, the local communities do not support conservation and use any opportunity available to abstract forest resources. In any case, the local communities hold the view that 'the main forest resource beneficiaries are wealthy non-resident people' (Taita interviewee). Coupled with the Forest Department's laxity in policing the forest and corruption, this has created a pseudo-open access, which has resulted in serious forest degradation and loss. Some of the illegal forest users include cannabis sativa growers, illegal loggers, especially of certain high value hardwoods such as Elgon teak, and charcoal burners. Many local and international NGOs have been involved in advocating protection of gazetted forestlands. However, their efforts have been hindered rather than supported by the Kenyan government, which has control over forest resources and legal excisions of protected forest areas.

The case of Taita

In analysing management-related conflicts for both wildlife and forest resources, it is imperative to observe the uniqueness of specific areas. This is critical, because different stakeholders have interests in specific natural resources available in specific areas. For instance, the Taita hills forest may attract substantial attention from stakeholders because of the endemic species or characteristics of the landforms and the culture of the local communities. It is therefore imperative to identify various projects implemented in the specific areas which, in the context of management, might or might not endear local communities to conservation.

Community-based wildlife conservation in Taita

Community-based wildlife conservation in Taita initially focussed on the western side, mainly Rombo and Kuku group ranches in Kajiado District, and the Man'gelele and Mtito Andei

Box 10.3
Summary of community wildlife conservation efforts in Taita[34]

Mobilisation
- In 1993, the Taita Taveta Wildlife Association (TTWA) was formed, but not yet registered because of leadership problems
- Wildlife Village Committees (WVC) aimed at enhancing social and bursary projects, but are now moribund.
- The Grazing Committee was to decide where to graze and control grazing in the park
- Game Scouts were trained to man 60 km fence erected through the Wildlife for Development Fund
- Ranch Meetings were mobilised to discuss problems of insecurity, wildlife etc.
- Formation of the Taita Taveta Land Owners Forum (TTLOF)
- Mobilisation of Lumo and Umbubaka ranches to form community wildlife sanctuaries
- Organised Barazas (public meetings) to talk on conservation, especially in Voi and Mwatate locations

Revenue Sharing programme and Wildlife for Development Fund (WDF)
- Ksh. 1 million Bursary Fund for school fees. Less was paid, resulting in conflicts with the administration and later it stalled
- General support, for instance, food supply during drought
- Maintain some roads
- Maktau Village Polytechnic
- Ndovu Clinic in Voi Clinic on community land controlled by the Ministry of Health
- Water Project in Rukanga
- Dams in Lumo and others in Mramba and Mbulia

Problem animal control (PAC) and fencing
- Problem animal control
- Ndara-Ndii fence (30 km)
- Bura-Maktau fence (30 Km)

Compensation by the ministry in charge and not KWS
- For injury and death

Utilisation
- Ranches
  - Kularu and Galana
  - Proposed ranches: Lumo and Umbubaka sanctuaries

CORE
- Conservation of Resources through Enterprise project, which is a revival of COBRA and focuses on support of enterprises related to eco-tourism

Others
- Education and extension
- Fuel for security vehicles; boreholes in Ndara and Aruba; the Ndara windmill; the Aruba windmill; the Kone windmill (about Ksh. 6 million). Funded through the David Sheldrick Wildlife Trust in the 1999/2000 financial year .

Biodiverse Resource Area) focal area, in which Tsavo West, Maktau in Taita Taveta District and Man'gelele in Makueni District were sub-focal areas.[35] The main activities were conservation awareness around the Tsavo West Maktau gate. Under the ongoing CORE (Conservation of Resources through Enterprise) project, which is a revival of COBRA, Taita is covered under the Taita Taveta South Coast focal area. However, it is not yet clear which

[34] This is based on interviews with KWS staff in Taita and local communities and the presentation by the then Community Conservation Officer, James Ndungu, during the Focal Area Team Meeting at Tsavo East Education Centre on 16 February 2000. Mr Ndungu is currently with the Utilisation Department of KWS headquarters.

[35] The COBRA project implemented pilot community conservation programmes in three focal districts, namely Laikipia, Samburu and Kajiado, as well as in the coastal areas south of Mombasa since 1993.

specific areas will be selected as sub-focal areas. The main goal of these initiatives is to support organised community-based wildlife conservation efforts, particularly under ranches.[36]

In areas neighbouring the Taveta, KWS paid most attention to the Kuku and Rombo ranches in Kajiado District. The Maasai community, which keeps the cattle, owns the ranch. However, some parts of the ranch are used for agriculture. In the neighbourhood, agriculture is extensive, with the main crops being onions, potatoes, bananas and maize. It is within this ranch that Grazing Committees were initiated to control grazing and encourage the sales of livestock. For whatever reasons, the KWS-initiated projects in the ranch were not completed. Indeed, most of these activities failed and most are not sustainable, since they depended on treasury and donor funding. It is in this context that COBRA initiated conservation through eco-tourism development in 1995. These initiatives are being pursued through the CORE project.

Community forest conservation

Community forest conservation efforts in Taita are mainly through the efforts of NGOs such as the East Africa Wild Life Society (EAWLS), the National Museums of Kenya (NMK) and the ongoing Global Environmental Facility-Cross Border Biodiversity Project (GEF-CBBP) on both trust lands (county council forest) and government land (gazetted government forests). This includes Ngangao forest gazetted under the Antiquities and Monument Act, Cap. 215, which is under the NMK. Specifically, the EAWLS has been instrumental in community-based forest projects in Taita with an office, two officers and a four-wheel-drive vehicle for mobility based at Wundanyi. Under the EAWLS Integrated Forest Conservation and Management Project in Taita (EAWLS-IFCM), the local communities received support to abstract water from Mbololo forest, which serves people around the forest particularly Wongonyi and the lower zones. This Mwalui water project was started originally by missionaries, but was seriously damaged by *El Nino* and was rehabilitated by the EAWLS. The EAWLS-IFCM initiated the Vuria Hill self-help group, which deals with beekeeping and tree nurseries. Under this project, six villages have established tree nurseries and each has been provided several beehives and the necessary honey harvesting gear.

However, in Taita so far there is no clear partnership between various stakeholders to manage forest resources, though many are involved through collaboration. The local communities through the community based organizations (CBOs) are involved in specific projects aimed at conserving the forests. For instance, the management of water spring in Taita forest. We note however, that the idea for such project come from the NGOs and the government, who also consult the local communities through the participatory approach. The communities are involved in the project and, once implemented, the project is to be run by the

[36] CORE Taita Taveta South Coast First Focal Area Team Meeting in 2000, held at the Price Water House Coopers Offices (Rahimtulla Towers, Upperhill Road, Nairobi) and CORE meeting at Tsavo East National Park Education Centre on 15-16 February 2000.

Box 10.4
Summary of problems and conflicts related to community-based wildlife management in Kenya

Community-based wildlife conservation management-related conflicts

- Community Wildlife Service working alone without collaborating with other relevant sections of KWS, local NGOs and/or other stakeholders
- Failures of the Revenue Sharing programme and Wildlife for Development Funds programmes
  - Promises of 25% revenue sharing with local communities never met
  - The Wildlife for Development Fund approach through the District Focus for Development and District Development Committee is not acknowledged by local communities
  - Few projects funded through the Wildlife for Development Fund, some incomplete and without involving the local communities in choosing, planning and implementation
  - The Revenue Sharing programme and Wildlife for Development Fund are seen as one and the same, wearing different faces in order to raise funds from donors
  - The Revenue Sharing programme and the Wildlife for Development Fund locally raised expectations and KWS was perceived as a donor
- Limitations of wildlife consumptive and non-consumptive utilisation

  Legal consumptive utilisation
  - Current consumptive utilisation technically illegal
  - Wildlife ownership controversial
  - Conditionality on user right cannot be met by small-scale landowners by virtue of the size of the land, hence no benefit to them, while they are the most affected by wildlife
  - Conflict between large-scale landholders practising consumptive utilisation and small-scale landowners who bear the cost of maintaining wildlife, thus raising the question of who owns wildlife. The perception is that the ranchers are mainly of colonial legacy and that a few African progressive ranchers alienate local communities' rights to wildlife
  - Limitation on evaluating, monitoring and enforcing hunting quotas
  - Likely to encourage poaching
  - No consensus on the legal utilisation

  Illegal consumptive utilisation
  - Extermination of poachers and 'shoot to kill' policy controversial
  - In the early 1990s only small men suffered, and no 'big men' were brought to books
  - Behaviour of rangers especially threatening and sometimes involved whipping local people in unclear circumstances

  Non-consumptive utilisation
  - Mainly not beneficial to the local communities, who are not the real owners of tourist enterprises
  - Limitation in the initiation of wildlife-based enterprises among the local communities
  - Licensing problems among operators of wildlife-related tourism activities
  - Conflicts related to tourist activities and their security in the parks
- Problem animal control (PAC)
  - Not effective and efficient
  - Killing of some animals, especially from sanctuaries, not appreciated by sanctuary proprietors
  - Translocation and the technique of driving away wild animals such as elephants are criticised
  - Fencing opposed by some stakeholders, not very effective in some situations (especially where it is not a perimeter fence, such as the Bura-Maktau and Ndara-Ndii fence, which elephants are able to circumvent) and not well maintained
- Compensation
  - Not clear who is responsible for compensation: the KWS or the Ministry in charge of wildlife
  - No compensation for destruction of property
  - Low compensation for people injured or killed by wild animals
  - Inefficient and abuse of compensation procedures
- Conflicts resulting from the institutional (internal) politics and external politics that affect KWS negatively
- Over-ambitious programmes, particularly the PAWS, which proposed that by 1996 KWS would be financially self-sustaining
- Conflicts related to stakeholder interactions, conflicts of interest and interpersonal conflicts

local communities through local committees. The question is, do these committees have a legal basis and/or how far do the forest laws allow their participation?

At the national level, in Kenya between 1994 and 1999, the Forest Department drafted three forest bills with the help and consultation of local communities, NGOs, academics, the United Nations Environment Programme, forest experts and the Attorney-General's office, each draft being a refinement of the last. The latest is now set for debate in Parliament. The forest bill and the forest Master Plan aim at modernising forest law, redress the injustices of the past and stem the tide of forest excisions. Indeed this is in the wake of forest law reform across East and Southern Africa – Lesotho, Swaziland, South Africa, Malawi, Mozambique, Namibia, Zambia, Tanzania, Uganda and, now, Kenya in the last five years. These reforms are based on the recognition that the State alone can no longer manage forests. That alienating the real custodians of forests – the communities that live closest to them – is self-defeating. That you cannot 'include' communities in forest management just by spouting the multisyllabic, politically-correct language of 'participation' that merely uses communities to refine and legitimise preconceived NGO and government projects. Communities – and this is the thrust of the new laws – have to be granted enough authority over the forest to make it in their own interest to protect and manage. Just trying to buy cooperation by offering user rights doesn't change anything. Ideally, communities have to be given the chance to control the forest themselves.

The Forest Bill being part of the continent-wide trend to democratise forest management in the context of globalization and localization, has had to face up to some uniquely Kenyan challenges, including indiscriminate community participation. A century ago, forests belonged to those who lived closest to them. However, the forest Bill does not propose to return the forest management to communities, as Section 21 defines ownership of protected forest areas, that "all forests are vested in the State". However, according to Section 30, "any person may establish a private forest". The Bill in Section 45, proposes that forests can be managed by entities known as Forest Associations. These bodies will consist of any individuals living within five kilometres of a State or local authority forest, who may apply to the Chief Conservator for permission to participate in the conservation and management of the forest. The Forest Department and the local authorities, however, continue to have the ultimate say over the forests in their jurisdiction. In this context, partnerships can be formed between the Forest Department for protected forest under state land (gazetted forest) and forest reserves under local government (forest on Trust lands) and the associations. These associations could be formed with the support of various stakeholders with the aim of benefiting the local communities and conserving the forest resources. However, there are challenges with regard to entitlement. The provisions for the Forest Association are not clear on what powers they would possess. However, the draft bill calls for the establishment of a District Forest Conservation Committee (DFCC) at district level and village committees at the village level. The DFCC shall advise on the ideas, desires and opinions of the people in the district in all matters relating to the conservation and utilisation of forests. The Bill further seeks the involvement of the private sector in the management of forests. In the committees, six members will come from the government and seven from the private sector, the NGOs and other interested parties. The committee shall also monitor the provisions of the Act and other

forest regulations in the district. It shall review applications for forest licenses and renewals of such licenses and advise a national board.

Unlike the situation of community-based organisations, who are simply *demanding stakeholders* (with urgency, but lacking power and legitimacy), the Forest Associations, once registered, will have legitimacy in addition to urgency, but will not be assured of power and will therefore become *dependent stakeholders*. In practice, the Forest Department, foresters are likely to want to hold on to policing powers, and the right to control how the forest is used and to fine offenders themselves. This means that the local communities in their new Forests Association may not have an incentive to protect the forest. The composition of these Forest Associations is also not clear. The Bill does not properly target the people who are the logical source of sustained forest management – the communities in villages that share a direct boundary with the forest, who in this case are the local communities. Instead, the Association is likely to be an NGO in the local area, comprising local elites and therefore assuming the role of NGOs in forest conservation as *dependent stakeholder* whose attention and access depend on advocacy by stakeholders that are more powerful or managerially benevolent. The major problem with this scenario, however, is that the local communities-villages bordering the forest areas will remain as *demanding stakeholders*. The *status quo* will remain and conflicts are likely to result. Furthermore, management will be mainly administrative regulation with limited organised bargaining, community-self regulation and a free market. Therefore, current problems relating to local communities neighbouring forest conservation areas will continue to be experienced.

Unlike Kenya's forest Bill, under Tanzania's forest Bill, villagers themselves are encouraged to secure millions of hectares of unreserved forest as Village Forest Reserves. Community ownership is recognised and management powers are vested in elected Village Forest Management Committees, accountable not to the government, but to the community. Villages may also be designated managers of Government Reserves. This approach to forest management in Tanzania is a good example of the "power-sharing model", integrating local communities with appropriate combination of legitimacy, power and urgency, thus *definitive stakeholders*.

In Kenya, the Associations may be strengthened through several initiatives, including formation of partnerships with the government management agency or department with a clear memorandum of understanding (MoU) conferring and defining power to the Forest Associations. The other initiative is to influence or control the composition of the Forest Associations by the government or NGOs. However, this would be contrary to basic human rights of association and would lack the support of local people, as it may not be a true community initiative. Kenya's Forest Bill, nevertheless, has a very positive dimension for the protection of forests. In particular, it makes protected forest areas excisions difficult and proposes the creation of a Forest Service, similar to the Kenya Wildlife Service, to replace the Forest Department.

The 'Kenya Forests Service' shall have more powers to protect all forests in the country and draw up management, conservation and felling plans for state forests. It seeks to transfer management powers from the Forest Department to the Kenya Forest Service and the Regulatory Board. The parastatal will, however, work under the Ministry of Environment and Natural Resources. Compared with the Kenya Wildlife Service (KWS), the Kenya Forest

Service (KFS) will have fewer local community-based conflicts, since trees in the forest, unlike wild animals in the park, do not move and therefore do not impact humans negatively. Of course, there are trees outside protected forest areas, but – unlike wild animals, which are owned by the government, irrespective of on whose land they occur – ownership is vested in the owner of the specific land on which the trees stand. The KFS will only be dealing with the perpetual problem of encroachment and unwarranted excisions of protected forests, in addition to encouraging community-based forest conservation and the growing of trees on private land. The proposed foresters' role is not only to be purely managers of forests as they have been, but also to become technical advisors.

Conclusion

Generally, wildlife and forest management-related conflicts are viewed in the context of policy and law and the related operational strategies. Conflicts arise when policies and the objectives of the conservation agencies and management strategies are discordant. Though the trend is towards community-based conservation for both wildlife and forest conservation, and conservation agencies' recognition of the need to allow user rights, policies and law are still based on the protectionist approach. This is not based on entitlements and underpinning ecological and socio-economic dynamics and it tends to encourage an anti-conservation attitude among the local communities.

Wildlife and forest authorities in the past have grudgingly conceded that local authorities and landowners have the right to share wildlife and forests, knowledge, technical skills, benefits and ownership. Initial policies of protectionism and the resulting paternalistic and monopolistic attitude of the conservation agencies are now considered inappropriate and incompatible with respective objectives, particularly the desire to conserve ecosystems by offering user rights to landowners. However, land use and tenure in Kenya have proved to be a bottleneck in community-based conservation endeavours as they tend to generate more conflicts. In any event, the operational strategies of wildlife and forest conservation are rooted in policy and law and are subject to institutional culture, internal and external politics, attitudes and perceptions of stakeholders. These also include projects and programmes. The individual philosophies of individuals within the agencies are also important, because the management approach tends to align with those individuals who work in or lead the respective agencies.

Part Four

Conclusions and recommendations

In this part, which comprises only Chapter 11, we present the conclusions and recommendations. It is made up of two major components. The first component, the conclusions, starts with a general discussion of the study followed by conclusions that are organised on the basis of each research question. The second component consists of the recommendations.

11

Conclusions and recommendations

Conclusions

The study focused on entitlement and stakeholders in wildlife and forest conservation-related conflicts in Taita, Kenya. It is based on the argument that greater community involvement in biological resource management could support sustainable biodiversity management, as well as sustainable livelihoods, by acknowledging the entitlements of the local inhabitants to their natural environment. This argument is based on a background in which the establishment and expansion of protected areas had the (unintended) consequences of 'displacing people' and cutting them off from their principal social and economic livelihoods, undermining local development and the credibility of forest and wildlife biodiversity conservation strategies. In the present case, the people concerned are the Taita. The study has therefore aimed at understanding the 'conflict relationship' which develops between 'wildlife' (and its human protection agencies) and 'people' (and their organisations). In addition, the study has tried to understand how local communities and other 'stakeholders' are involved in wildlife and forest conservation activities within and around conservation areas and how they are reacting to a variety of incentive measures in the context of community-based conservation.

The thesis propounds that a community-based conservation approach, in general, relies on the active participation of the local people in conservation interventions. It entails not only recognising entitlement rights of local communities and indigenous people, but also obligations, responsibilities and managerial capabilities. This approach is being espoused as a means of ensuring wildlife and forest biodiversity conservation, while meeting the needs of local communities in a context of sustainable development. Community-based conservation initiatives are no longer on trial; what need to be worked out are the conditions for their success. In particular, though promising and widely accepted the world over, community-based conservation initiatives are riddled with uncertainties and limitations regarding their efficacy. They are considered relatively new, unproven and more of a hope than a reality. Meanwhile, the local communities continue to feel alienated from their traditional resources,

while calls for greater community participation in wildlife and forest conservation in general are being misinterpreted by governments as demands to turn the whole enterprise over to the local people.

Nevertheless, community-based conservation is being shaped mainly under ecosystem management approaches, paradigms of protectionism and conservationism, and stakeholders' scepticism. The argument of ecosystem management propounds that bounded spaces for nature cannot be preserved in isolation from the surrounding landscape, nor can the assemblage of species constituting an ecosystem be safeguarded indefinitely in the same place in view of ecological and socio-economic dynamics. This argument is based on the characteristics of ecosystems, particularly the ecological connections between different components and resources within an ecosystem and between ecosystems. This calls for management that goes beyond the designated protected areas, particularly in the case of those whose initial designations were not based on ecosystem delineation, as in Kenya. In Kenya, management beyond designated protected areas has far-reaching implications on the current regime of land tenure, in which private owners tend to have exclusive rights over land. However, it is noted that in many parts of the world, including Kenya, land tenure is a mosaic of legal interests, conditional rather than absolute. In this regard, land tenure, rather than being a bundle of rights residing in a single owner, is a series of separable rights often held by a 'bundle of owners'. This argument evokes the concept of legal pluralism, because in practice there are coexistence and interaction between multiple legal orders such as state, customary, religious, project and local laws, and hence institutions. Under the concept of ecosystem management, separating ownership into 'public' and 'private' is neither useful nor accurate. Thus, private rights are no longer exclusively private, and public rights are no longer exclusively public.

In this context, the propagation of the paradigm of 'protectionism' is considered to contravene the tenets of ecosystem management. Moreover, it is equated with the eviction and exclusion of local and indigenous communities, criminalisation of traditional land uses and the emptying of cultural landscapes. Thus, it is a matter of human rights discourse. Nevertheless, the stringent protectionism approaches are now considered futile and their place is taken by 'conservationism', which recognises both ecological and socio-economic dynamics and linkages under the broader concept of sustainable development.

Community-based conservation, as a major concept of 'conservationism', which is also regarded as the current conservation approach, strives to endear conservation to local communities. It endeavours to support local traditional and indigenous entitlement structures that support conservation of wildlife and forest biodiversity. In essence, the community-based conservation approach has an interest in local level solutions to resource problems and in changing local institutional arrangements by conferring specific rights as incentives that will foster efficiency, sustainability and equity in human wellbeing. In this way, it is intended to stimulate local participation in the conservation efforts under an ecosystem management approach, which includes protected areas and their surroundings, thus linking wildlife and forest biodiversity conservation with socio-economic development.

The design and implementation of community-based conservation projects tend to overlook both ecological variability, and the socio-economic differentiation and potential for conflicts. This often generates scepticism among stakeholders at different levels. Generally, in terms of perceptions, conservation activities of various environmental non-governmental

organisations (ENGOs, particularly the international actors) are viewed as infringements of local rights, including the mandates and rights of government departments or agencies with legal jurisdiction over the management of protected conservation areas. This is the case in the context of stakeholder identification and salience. The ENGOs demonstrate urgency in their claim and are legitimate. In this regard, they are dependent stakeholders, who use advocacy to meet their interest. Sometimes they may have power to influence decisions in biodiversity conservation. In the same realm, the activities of the same government agencies and those of ENGOs are viewed by the local communities as infringements of their entitlement rights. This is the situation when the local communities are not involved in conservation activities based on entitlement rights. The heterogeneity of the local communities in terms of socio-economic differentiation also contributes to the distrust of each other in the community-based wildlife and forest conservation initiatives. This implies lack of consensus among the stake-holders.

On the basis of ecosystem management, the 'protectionism' approach and stakeholder scepticism, the research framework points to the importance of involving local communities in managing environmental conditions and risks, influencing who has access to, and control over, which resources, and arbitrating contested resource claims. An inherent component of sustainable development is open consultation with, and full participation of, stakeholders. Indeed, if local units are included in the effort to set rules and regulations, access and use of resources can be matched effectively to local environmental conditions. This is encapsulated in the concept of entitlement rights, which is an amalgamation of the right to own, the right to use and the right to intervene in resource situations. These are not only rights, but also include the social process used in the allocation of resources, which entails local level power relations. The framework presents the argument of 'reforming the conservation approach' in ecosystem management. The reform tends towards a community-based approach. In terms of resource ownership and access, this approach identifies five dominant types of social mechanisms used in allocative decisions, including *laissez-faire*, administrative regulation, organised bargaining, community self-regulation and the free market. These are viewed in a systemic and relativistic way, with a primary type being complemented in practice by a secondary and perhaps a tertiary type. Although the tendency is in favour of community self-regulation for community-based conservation, the implication is coexistence and interaction between various actors. This poses the question of who are the actors? While the concept of entitlement rights ideally explains what type of rights exist in community-based wildlife and forest conservation, the stakeholder theory helps to identify who has what rights (legitimate claim), power and urgent claims. This forms the basis of stakeholder identification. In general, this framework is concerned with the actual process of how people gain access to resources with a gradation of rights and power. Therefore, being a stakeholder is a matter of entitlement, whereby the actor's ability to gain access to resources depends on legal, political, economic and social conditions in a society. Nonetheless, of importance to this research framework are the limits of institutions in responding to wildlife and forest conservation conflicts, specifically when these institutions are themselves embroiled in institutional politics and conflicts, and inter and intra-institutional rivalries. Moreover, knowledge-based solutions, such as design and implementation of community-based endeavours, are also power-based and linked to institutional interests. These interests tend to be insensitive to the limitations

they impose on the community-based conservation endeavours. Moreover, the laws governing the respective resources do not adequately address some of the new initiatives of community-based conservation.

In general, the framework does offer a useful set of analytical tools for taking a more disaggregated approach to people-environment relations and for untangling the complexity of institutional relationships in resource management. In this framework, the research methodology employed a combination of several techniques of data collection. For each technique, a multi-subject survey was used, in which data on related subjects were collected from the respondents. This approach overcomes biases in each method, as combinations of methods provide different sets of information, which are mutually enriching. The basic techniques used included asking questions, observing and extracting existing secondary data. Asking questions targeted various stakeholders. For the local communities, a combination of structured and semi-structured questionnaires was used at the household level. This was supplemented by focussed group discussions and the use of key informants at village level. For the officers, mainly from the government agencies, ministries and departments, and non-governmental organisations, including private firms engaged in conservation and development issues in Taita, unstructured interviews were held in the form of informal discussions. These were supplemented by secondary data extraction. Observations in the field were also made and records taken during the household surveys.

1. *What/how are the entitlement structures for wildlife and forest biodiversity conservation in Taita, Kenya?*

This question has been answered by assessing the entitlement structures for wildlife and forest biodiversity conservation in Taita. The assessment was done in a broad perspective that involved a historical analysis of ownership and use of land resources, and a wildlife and forest conservation typology. The thesis views history as a manifold process of interaction between external and internal actions and events, in which contingencies and path-dependency play a significant part. History is therefore central and necessary to sociological enquiries as the lens through which the relationships between agency, structure and power or social actors and institutions become apparent.

The historical perspective focussed on the Taita traditional customary entitlement structures in three eras, i.e. the pre-colonial, colonial and the post-colonial periods, coming down to the present time. The historical perspective ranges from the assessment of customary entitlement structures to the assessment of the current 'formal' entitlement structures. The assessment included a clarification of who are the Taita people and of their area coverage and historical origin. Their traditional entitlement structure is depicted as a constellation of elements of their social, cultural and political organisation, and their economic life. This extends to how natural resources were owned and used and how conflicts over resources were mitigated. The colonial and post-colonial eras are discussed in the context of how the traditional entitlement structures were altered with the advent of colonialism and later after independence. This provides a vantage point from which the current situation of wildlife and forest conservation conflicts can be explained.

In summary, the Taita people did not have a centralised political system. Their traditional entitlement structure was kinship based. In the three massifs, Dabinda, Sagalla and Kasigau, the Taita developed a number of analogous, generally autonomous and self-contained large kinships or lineages known as *vichuku vibaha* (singular *kichuku kibaha*). Members of each *kichuku kibaha* claimed patrilineal descent from a common ancestor. The population size of each *kichuku kibaha* ranged from fewer than 100 to more than 1,000. Factors other than kinship contributing to the coalescence of *vichuku vibaha* included land rights based on traditional occupations. Authority at the village level or within the *kichuku kibaha* rested with groups of male elders who heard and resolved disputes, acted as witnesses and functioned as experts on tribal customs. Elders met on an *ad hoc* basis to settle disagreements through mutual understanding. Thus, even without a 'chief', state matters within kinship groups and between two or more kinships were managed expeditiously.

In the context of resource ownership and use on the hills, for as long as the Taita people can remember, land has been held individually and on a kinship basis. Once an ancestor of the present-day Taita arrived in the area and laid claims to tracts of land, no other person came to claim the same land. However, there could have been attempts to raid other groups, which probably in turn gave way to the development of a kinship political system, *kichuku kibaha* and the *mundu wa figi* to protect the interests of its members and their sovereignty. Each *kichuku kibaha* functioned as a property-transmitting unit. At household level, males owned the land and wives were allocated plots for crop growing in different zones and the husband moved between them. Wives also had gathering rights to water, fuel, grass for thatching and other items on the virgin land belonging to the *kichuku kibaha*. Land left by a man at his death could not be disposed of outside the *kichuku kibaha*, but had to be bequeathed to a person within the *kichuku kibaha,* generally a male member of the family of the deceased. Sometimes a new person, either a Taita from another *kichuku kibaha* or a non-Taita through a blood covenant, used traditionally to make a 'blood brother' (the *Mtero* ceremony)*,* could also be allowed to inherit land. This factor served to intensify political unity and loyalty among *kichuku* members.

Generally, each *kichuku kibaha* covered all the possible varieties of land stretching from the hilltop to the plains. This means that each *kichuku kibaha* had land on the hill, on the slope and flanks of the hill and a few kilometres into the plains. In this respect, the land-use pattern was reflected by the *kichuku kibaha* and/or land owned by a particular family. Each *kichuku kibaha* had land with a general shape of a strip running from the hill to a few kilometres deep into the plains, beyond which land was free for anybody. The land in the plains was in most cases used also by other ethnic groups, such as the Maasai. Although the Taita people used the plains for farming during the rainy years, and for hunting and grazing, they did not reside in the lowlands. They had a special regard for the plains and had to perform certain rituals to protect themselves from the disasters associated with the plains, such as droughts, invasions by other tribes and wild animals. Thus, they had taboos relating to the plains, which included quarrelling, violence, sexual intercourse, giving birth, pouring human blood or even dying.

Historically, prior to the colonial era, land shortage in one area was mitigated by emigration or by renting land in another area. Traditionally, sugarcane and sugar beer, referred to as *denge,* were very important in these land transactions. Just before colonialism, the Taita began

to move to the plains (but within their territories) breaking some of their taboos associated with the plains. Later they moved further away, where settlements such as Maktau developed.

The Taita traditional production and consumption pattern was agriculturally based. The Taita were mainly agriculturalists, but kept cattle, goats and sheep, mostly for their social and ritual practices, which have waned considerably. However, arable land has always been scarce, necessitating very careful management systems, involving the employment of 'sophisticated traditional' agricultural and animal husbandry techniques. The Taita recognise three distinct types of cultivation, i.e. dry land or hillside cultivation, lowland cultivation and cultivation by irrigation in the lowlands, hills and on the flanks of the hills. To maximise production and ensure food security, every household in most cases practised a combination of the three types of cultivation. The uncultivated land and any other land that was previously cultivated, but left fallow, served as grazing land. Irrigation in the hills and the flanks has been practised by the Taita people for as long as can be remembered and served as one of the techniques to ensure sustenance in times of scarcity of food and arable land. Therefore, each household required land suitable for the three types of cultivation and for various crops, grazing and the homestead, as well as other natural resources, including forest products. In general, many families were both pastoralists and cultivators, and their settlements exhibited characteristics of both kinds of organisation. In terms of labour, males did the clearing of land and the females did the cultivation, planting and weeding. Harvesting was done by both sexes. However, cattle herding was almost exclusively the prerogative of the men and boys and did not usually involve the transplanting of the entire household, not even for a transient settlement.

As population densities increased in the hills, more and more people used the plains for grazing. A pattern of cattle movement, very similar to transhumance, evolved in Taita, the major stimulus for which was availability of moisture. In very dry times, cattle were moved up-slope to take advantage of orographic precipitation in the hills. When rains had been quite heavy, the cattle were often moved as far as twenty miles out into the plains to graze. It was quite common during pre-colonial times for the family head to take his sons and drive cattle to the plains. In some cases, when the Taita stated breaking some of the taboos related to the plains, the family head also settled one of his wives in the plains, where she also cultivated a small plot of maize and beans. Ideally, this arrangement allowed the family to accumulate wealth in cattle and to be self-sufficient in plant food production. This pattern of land use was also a way of spreading environmental risks.

Hunting of game traditionally played an important role in the Taita livelihood. Males would periodically visit the plain to obtain fresh game meat. Slaying or capturing the animals was done using the bow and poisoned arrows, game pits and snares. Some of the wild animals that were hunted by the Taita people included the elephant, rhinoceros, giraffe, eland, zebra, buffalo, dikdik, hippopotamus, oryx, waterbuck, reedbuck, Grant's gazelle, Thomson's gazelle, duiker, bushbuck, lesser kudu, Coke's hartebeest, impala and warthog. The carnivores included the lion, cheetah and wild dog. The birds included guinea fowls, partridges, francolin, grouse, ostrich and the marabou stock. However, stories of the elephant as narrated by the elderly indicate that traditionally, the Taita did not hunt the elephant, as they regarded killing of the elephant as murder and whoever killed one had to undergo a purification ritual. In addition to hunting, the gathering of wild plant products from the plain's bushes and the

hill forests was also a very important occupation. These products included almost every part imaginable of a plant, such as leaves, twigs, branches, back, stem, latex, flowers, fruits, roots and tubers. The use was as diverse as the parts and, to some extent, the diversity of the wild plants. The uses include medicinal (human and veterinary), witchcraft, nutritional (vegetables and fruits, sap beverage, spices), insect repellents and insecticides, detergents, wooden beehives, roofing material, timber for construction, fibres, boundary marks and water channels or pipes. Honey was, and still is, an important commodity in the Taita livelihood. Traditionally, wild honey was harvested and supplemented with honey collected through human effort by setting beehives in the hill forests and in the bushes of the plains.

The Taita also raided other communities to obtain what they needed and wanted, but could not acquire through external trade. Acquisition of livestock was the main objective of these raids, although women and children were also captured. The livestock were needed to satisfy various internal demands and could easily be exchanged for other goods. Attempts to raid the Taita were not easy, due to their topographic advantage, which provided security and suitable strategic points to counter any troops of raiders.

Traditionally, the Taita traded locally within the confines of the larger lineage or neighbourhoods. However, trade was limited, as there were no significant differences in skills and products at household levels or even between lineages and neighbourhoods. The limited local trade was mainly for agricultural produce, livestock, game meat and handicraft items, such as beehives, mortars and pestles. Only the pottery and the iron smelting appear to have transcended internal trade at the local level. The Taita cooperated mutually with the Kamba and other groups, such as Pare and Shambala (Shammbaa) in trading caravans as well as raiding. The Taita also cooperated and traded with people along the coast. Initially, trade with the coast was done through the *Miji Kenda* intermediaries who, in turn, dealt directly with Swahili, Arab, and Asian merchants in the coastal towns. The trade involved the exchange of ivory, rhinoceros horn and livestock conveyed to the coast by the Taita for beads, wire and cloth. With the increase of caravan trade to the interior, the Taita no longer needed to travel to the coast for the coastal goods. This was specifically because of the strategic location of the Taita hills on the caravan route, where it was crucial for the caravan to stop over for water and food before proceeding further. Concerning the slave trade, it is not clear what role the Taita people played. However, there is evidence that they were captured by Kamba people, particularly during droughts and sold to the coastal people as slaves. This may have been the case by the 1820s, when markets for wildlife products, such as ivory, expanded from Arabian and the Eastern countries to the rest of the world, thus increasing the demand for porters. In the same period, clove and other agricultural industries expanded on the islands of Pemba and Zanzibar, demanding more labour, which was supplied through slave labour.

The incursions by the colonialists occasioned fundamental changes in the traditional entitlement structure of the Taita. The structure was slowly degraded and replaced with a colonial structure. With respect to demography, the Taita population has been increasing steadily, from as low as about 20,000 or 40,000 people in the 1880s to over 240,000 people currently. The implication of population growth is obvious. Human population pressure on the hills has not only led to extensive forest fragmentation and loss in the hills, but also posed threats to the fragile lowlands and wild animals. As a pressure release, people trickled down to the lowlands for permanent settlement. Settling in the lowlands has been slow, but the implications

are notable. Currently, they include the subdivision of ranches for private individual ownership, reduction of grazing land and further contraction of wildlife areas, as human settlement and farming areas expand, resulting in increased human-wildlife conflicts. The specific environmental and socio-economic problems in Taita in a descending order of urgency include water scarcity, food shortage, wildlife menace, health-related problems, land shortage, soil erosion and, lastly, biodiversity degradation. In general, the overall result is increased poverty and the general alteration of natural landscapes with corresponding loss of biodiversity.

In terms of current land-use cover, the Tsavo National Park (Tsavo East and West) occupies 10,539 km^2, which is about 62% of the total area of the district. This is state land, the legal jurisdiction over which, as a national park, falls under the Kenya Wildlife Service, together with all the wild animals, irrespective of where they occur at any time. The land left for other uses is 6,435 km^2; that is 38%. Out of this, the rangeland occupies 4,057 km^2, which represents 24% of the district's total area. This land was initially under state ownership and comprises mainly the ranches. Agricultural land, which was initially under trust land, is about 1,930 km^2; that is 11.4% of the total area, much of which is currently under private ownership. The forest areas cater for 0.44% (7,518 ha) of the total district land (1,697,500 ha). In terms of land tenure, gazetted forest areas are under Forest Department jurisdiction, while the non-gazetted forest areas are under the local government, but the management is mainly by the Forest Department. The bare land and water surfaces cover between 400-500 km^2, which is about 2.6% of the total area of the district. Sisal estates, the only large-scale farming, apart from ranching, in Taita Taveta District cover about 31.4% of the privately owned land, while the remaining 68.6% is used by small-scale farmers with an average size of about 1.78 acres per holding.

This leads us to the other questions, which focus on issues relating to the current entitlement structure and stakeholders.

2. *Who are the stakeholders? How are the local communities and other stakeholders involved or linked to wildlife and forest biodiversity conservation in Taita?*

Two research questions, (2 and 3) as listed in Chapter 1 are combined here. These questions have been answered first by defining the stakeholders and secondly by addressing how the local communities and other stakeholders are involved or linked to wildlife and forest biodiversity conservation in Taita. Thus, a stakeholder has been defined as any group or individuals, including various organisations, social groups and individuals who can affect and/or be affected by wildlife and forest conservation or who possess a direct, significant and specific stake. The stake may originate from an institutional legal mandate (statutes and policies), geographical proximity, historical association (negative or positive), and dependence for livelihood, economic interest and other capacities or/and concerns. Thus, in this context, stakeholders in wildlife and forest biodiversity management will generally fall into one or more of the following categories:

a. Those whose interests are affected by wildlife and forest-related problems and/or by management strategies and action plans, as well as those whose activities significantly affect wildlife and forest issues;

b. Those who control or influence management instruments relevant to wildlife and forest issues and its management; and
c. Those who possess important information or expertise and capacities needed to address wildlife and forest issues and to develop management strategies and action plans.

These categories are broad. Within each category, in order to distinguish further among the stakeholders, the following interrelated questions are pertinent:

(i) What types of rights over wildlife and forest biodiversity resources exist: who owns, who uses and who intervenes in resource situations? Who manages, who invests, who bears the cost and who benefits from wildlife and forest biodiversity conservation? It may further be asked, who holds what right(s) over wildlife and forest biodiversity resource management and what does this mean to other stakeholders? Who play what role(s) in local wildlife and forest biodiversity conservation and what rights, obligations, responsibilities and managerial know-how do these actors possess?
(ii) Who influences decisions in resource situations and at which level of scale do these actors operate?

These questions are critical in stakeholder identification and provide information on the origin of the stake and the areas of conflict. They form criteria for stakeholder identification and analysis and the following related and dynamic issues are important in answering them:

- Traditional and current or existing entitlement rights to land and to wildlife and forest resources
  - Historical and cultural relationship with the resources at stake;
  - Current relationship and continuity of the relationship;
- Losses, costs and damage incurred in the management process;
- Unique knowledge and skill for the management of the resource at stake;
- Degree of effort and interest in management, such as being aware of interests, bearing costs or willing to invest or influence management;
- Equity in access to resources and the distribution of benefits from their use;
- Compatibility of the interest and activities of the stakeholder with national conservation and development policies;
- Present or potential impact of the activities of the stakeholder on the resource base.

In relation to the classification of stakeholders based on the 'scores' of prospective stakeholders, each of them may demonstrate a varying level of each or a combination of three attributes, namely, power, legitimacy in claim and urgency of the claim. On the basis of these attributes, which are keys in the concept of entitlements, stakeholders are differentiated into groups that have legal or moral claims on the management entity (legitimacy), groups that are in a position to influence the decision (power), and groups whose claims demand immediate attention from managers (urgency). Therefore, to be a stakeholder, one has to have either a legitimate and perhaps urgent claim on the entity or be able to wield power over the entity's decisions.

In conclusion, this thesis notes that stakeholders are diverse and heterogeneous. However, they are aware to a significant extent of their interests and concerns and possess specific capacities such as knowledge and skills and/or comparative advantage, such as proximity, mandate and historical relationship. Stakeholders also bear the cost or are willing to invest specific resources, such as time, money and political authority to influence management instruments. The analysis of stakeholders provides opportunities for institutional arrangements based on entitlement rights that would foster wildlife and forest biodiversity conservation in the context of 'conservationism'. Institutional arrangements based on clear entitlement

rights provide the most basic incentive for community-based conservation that would ensure efficiency, sustainability and equity.

At the most basic level of stakeholder identification there are three broad wildlife and forest biodiversity conservation institutions: (i) local traditional/community institutions, (ii) non-governmental institutions and (iii) government institutions. All these are involved directly or indirectly and have stakes in wildlife and forest biodiversity conservation in Taita. In the context of the current entitlement structure and their stake, their levels of organisation are different. The government and non-governmental institutions are comparatively well organised, while the local communities have yet to be better organised in order for their interests and concerns to be realised. The entitlement rights provide a strong basis for organising them. This study observes that, within each institution (local traditional/community, non-governmental and government institutions), several subsets exist. Therefore, for satisfactory stakeholder identification, disaggregating each institution into constituent sub-sets is imperative. The disadvantage of this is that the number of groups and individuals with a stake becomes too large for detailed analysis. However, there are advantages in disaggregation, as it provides an opportunity for understanding the local level power relations and entitlements in resource management.

In general, the local communities belong to the group whose interests are affected by wildlife and forest-related problems and/or by management strategies and action plans, as well as by those whose activities significantly affect wildlife and forest issues. This is discussed in the context of human-wildlife conflicts for both wildlife and forest conservation. Two basic categories of conflict were identified. These are direct human-wildlife conflicts, which include negative human impacts on wildlife, as well as negative impacts of wildlife on humans. The second are the management-related conflicts, which concern mainly the constraints and challenges of wildlife and forest management institutions, particularly in the design and implementation of community-based conservation initiatives. This partly constitutes the second objective of the study, which was aimed at analysing the socio-economic factors that impinge on wildlife and forest biodiversity conservation. It also partly constitutes the third objective aimed at assessing the nature and extent to which the local communities are involved in conservation of wildlife and forest biodiversity management in Taita.

The negative human impacts on wildlife at the local level are mainly due to increasing human population and the subsequent increase in needs for land, food and income. The specific negative impacts include competition for land, pasture and water, and direct exploitation of wild animals and their habitats, including forests. The negative direct impacts of wildlife on humans are categorised into two groups. The first group includes those that are direct to humans, including human injury or/and death caused by wild animals and loss of freedom and security. These impacts have many other related implications for the social and economic situation of the households affected. The second group includes those impacts or damages to properties, such as livestock depredation, loss and damage to agricultural crops, competition for space and competition with livestock for water and pasture, destruction of infrastructure, hosting and transmission of diseases to livestock, and destruction of trees and seedlings.

In the analysis of wildlife impact on humans, it is noted that residents of the hills are less affected compared with the residents of the lowlands. However, the majority of the people on the hills have interests in the lowlands. Some have crop farms and livestock in the lowlands

and on the flanks of the hills nor can human-wildlife conflicts in the hills be ignored. Bush pigs, monkeys, baboons and porcupines are a nuisance to crop farming in the hills, particularly in areas adjacent to the forest reserves. Nonetheless, the problem of wildlife is most intense in the lowlands, particularly in those areas nearest to the park or along wildlife migratory routes and watering places. These areas also experience land tenure-related conflicts, particularly in some ranches where people have settled or are squatters. Nevertheless, the two electric fences, the 30 km Ndara-Ndii fence and the 30 km Bura-Maktau fence, have significantly reduced direct human-wildlife conflicts in the respective areas. However, after some time since construction, the elephants are now finding their way around the fence to human habitations. It is predicted that, with a growing elephant population, the fence will be rendered ineffective, as more and more elephants will find their way into the human habitations.

Among all the wild animals, the elephants stand out as the greatest threat to humans in Taita. They are responsible not only for crop loss, but also for human injury and/or death, livestock depredation and the destruction of human structures. Their huge size, strength, intelligence, great feeding capacity and loss of fear for people make them more difficult to manage. Second to elephants in Taita are the lions, which mostly predate on livestock and cause human injuries and/or death.

The loss, costs and fear caused by wildlife destroying property and injuring or killing humans are the principal sources of the management-related conflicts. The management-related conflicts are institutional. Of particular interest here is the limited response of institutions to human-wildlife and forest management conflicts. It is noted that the institutions with legal jurisdiction over the management of both wildlife and forest resources are themselves engrossed in institutional politics and conflicts and inter and intra-institutional rivalries. These are viewed as limits on community-based conservation.

It is therefore imperative at this juncture to highlight some challenges of community-based conservation initiatives discussed broadly under management-related conflicts. In summary, the community-based conservation initiatives tend to be project-oriented and face challenges that contribute to management-related conflicts in wildlife conservation. Some of these problems requiring redress include the following:

- Community-based projects and other conservation initiatives often cover smaller areas than what may be construed as an ecosystem. For instance, in Taita it may not be justifiable to initiate a project in Maktau and omit the Kasigau area, which is also hard hit by direct human-wildlife conflicts and lies within the same ecosystem.
- The establishment of a project often sets up unfavourable incentive structures. These are expressed through dynamic relationships between the stakeholders, particularly the donor and recipient.
  - Once a project is funded, the main objective of the beneficiaries quickly becomes obtaining as many benefits as possible from the project, and to get the project to address their most urgently felt needs, often short term, some of which may not relate directly to wildlife or forest conservation.
  - The project also raises false expectations and builds dependency instead of self-reliance and sustainability. Instead of ‘good relations’ and cooperation through consensus, it leads to worsened relations and hostility, especially when benefits do not meet expectations or when projects are phased out. For instance, the incomplete Maktau polytechnic, a project started by the Kenya Wildlife Service, attracts dissent from the local communities and other stake-

holders, such as the local government, provincial administration and some non-governmental organisations.

- Projects also have challenges in proceeding with implementation without adequate understanding of the socio-economic and ecological dynamics, resulting in a lack of consensus and leading to misplaced project 'ownership' and priorities. In this regard, a project tends to focus on implementation of activities without a clear understanding of the realities on the ground.
- The project approach tends to focus on activities rather than the impacts or outputs. Since a project consists of specific activities within a specified period, the project supporters often become preoccupied with implementing them and therefore measure progress and achievement in terms of these activities rather than in terms of impacts or output. Indeed, most project reports focus on the extent to which the specific activities have been implemented. The result of this is the general absence of effective ecological and socio-economic monitoring and evaluation. Even if attempts are made to identify impact indicators, in practice, monitoring and evaluation usually focus on implementation of activities. In any case, the background socio-economic and ecological aspects are often unknown. Moreover, while it is recognised that most community-based conservation projects suffer from some or all of these problems, and are consequently unlikely to achieve their stated objectives, the stakeholders often do not see that they are going off track until too late, or they choose to ignore the warning signs, because of the strong desire to see the project succeed.
- In general, it is noted that, despite the recognition of community-based conservation as 'best practice', 'protectionism' continues to prevail. The practices of 'protectionism' have become less acceptable and feasible, not only in the context of the tenets of the ecosystem management approach, but also because of increased pressure from growing rural populations, increased attention to people's rights, inadequate resources and poverty. However, several initiatives of community-based conservation, including incentives, have been launched. Although there are hopes, these initiatives have not achieved a demonstrable wildlife and forest conservation success in either the short term or the long term. They have not generated substantial and lasting political and practical support at the local community and national levels. This is discussed further under the question on perceptions.
- The stakeholders who control or influence management instruments relevant to the wildlife and forest issues and their management include the local government structures and government departments and agencies with legal jurisdiction over wildlife and forest management. Local government structures include the local authority (local government) and various government departments at district level. In this case, the government department and agency with legal jurisdiction in charge of wildlife is the Kenya Wildlife Service and the one in charge of forest is the Forest Department. Analysis in this thesis indicates that these stakeholders are diverse and have challenges in their way of coordination that is expressed in the form of inter and intra-agency conflict. However, with the enactment of the Environmental Management and Coordination Act of 1999, there are opportunities to coordinate the mandates and activities of this and other groups of stakeholders. The stakeholders who possess important information or expertise and capacities in wildlife and forest conservation include the local communities, government institutions and non-governmental organisations. The local communities possess indigenous knowledge and, of course, they have first hand information about, and daily experiences with, the area in which they reside. The government institutions with important information, expertise and other capacities include the relevant government departments and agencies with legal jurisdiction. They also include those without direct legal jurisdiction, but possessing important information and expertise, such as research institutions, education institutions and other institutions, such as the National Museums of Kenya. Non-governmental organisations also possess important information and expertise based on their concerns. Among this group of stakeholders, the donors have the capacity to fund on the basis of their concerns and interest.

Nonetheless, who is a stakeholder in wildlife and forest biodiversity conservation and management is often a controversial issue, especially where there are no clear entitlement rights and where interests are conflicting. Since conservation of biodiversity cannot be separated from economic development, a reality that has lead to the concept of sustainable development, biodiversity stakeholders include everybody and all the institutions at the local, national and international levels. There has been a growing concern about the future of interlocked ecological and economic systems characterised by major social disparities. Inequity in ownership and access to natural resources, including biodiversity resources, contribute to unsustainable use. Table 11.1 summarises the stakeholders in Taita and provides a model for stakeholder identification in areas of wildlife and/or forest biodiversity conservation.

3. *What is the perception of the local communities on wildlife and forest biodiversity conservation?*

The local communities generally appreciated the conservation of both wildlife and forest biodiversity. However, they view their relationship with wildlife and forest conservation more in the context of 'protectionism' than 'conservationism'. Historically, wildlife and forest conservation strategies have been simply the imposing of law and order, ignoring people's needs and rights based on the 'protectionism' approach. People's perception of wildlife management, in particular, which has not changed as yet, is that the government cares more about wild animals than about people. This is more critical, particularly in relation to the elephants, which are considered an endangered species and therefore attract more attention for protection, but which are regarded by the local people as the most troublesome.

The local communities feel alienated from their natural resources, since they are not granted any opportunity to use them or participate in their management. For wildlife resources, this is aggravated by the fact that the local communities suffer substantial losses through direct human-wildlife conflicts. Without an appropriate compensation scheme and unable to control wild animals that cause these losses, over time the local communities have developed antipathy towards wildlife conservation and the Kenya Wildlife Services, which is the government agency with jurisdictional mandate over wildlife management. The antipathy towards the forest is less compared with wildlife, although the forest harbours certain wild animals such as bush pigs, monkeys, baboons and porcupines, which are a serious menace to farmers neighbouring these forests. In terms of forest use, the local communities argue that non-residents or non-Taita have been the beneficiaries of these forest areas. In most cases, the latter colluded with government officers, who are supposed to protect the forest. Moreover, the local communities have no rights over these forests, which the local Taita consider as part of their ancestral resources.

Table 11.1
Stakeholders' identification in wildlife and forest biodiversity conservation: The Taita case

Stakeholders	*Specific stakeholders*	*Main activities in wildlife and forest conservation*	*Origin of stake*	*Concern*
Government departments and agencies with legal jurisdiction	- Kenya Wildlife Service (KWS) - Forest Department (FD) - National Museums of Kenya	In charge of wildlife management and conservation In charge of forest reserves under the Forest Act - In charge of forest under the National Monument Acts	Institutional mandate	Conservation of the respective resources
Local governance structures at provincial and district level	- Local government/-authorities, government departments at district level - Political authorities prescribed by statutes, political party structures at various levels	Sectoral wildlife and forest conservation involvement, *e.g.* management of forest by local government, activities of various government departments at district level, etc. Politicians influence decision-making and local people's behaviour through mobilisation	Institutional mandate	Local socio-economic development and environmental conservation in general; socio-political concerns
Local non-governmental organisations	- East Africa Wild Life Society - Friends of Tsavo (FOT) - National interest organisations, - National service organisations - Cultural and voluntary associations	Research, initiating community forestry and also involved in the implementation of the USAID-funded CORE project Charitable trust dedicated to the conservation of Wildlife in Tsavo with funds raised from business enterprises	Local, national, regional and international institutional interests, capacities and concerns	
International organisations	- African Conservation Centre African Wildlife Foundation - Programmes *e.g.* GEF Cross Border Biodiversity Project - Donors and development agencies *e.g.* DANIDA - Many others *e.g.* GTZ	Both are involved in research and in the implementation of CORE project Involved in forest conservation Involved mainly in development projects and forest conservation in Taita Taveta District and working through various government departments. GTZ did an inventory research with the aim of initiating development projects which may include biodiversity conservation	Local, national, regional and international institutional interests, capacities and concerns	

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Other national and international organisations and institutions	- Universities and research organisations	Research	Institutional interests, capacities and concerns	Local socio-economic development and environmental conservation in general
	- Consultants and staff of relevant projects and programmes	Consultancies, development and conservation efforts		
	- Religious bodies		Moral and spiritual concerns	
Local communities	*Organised groups* - Taita Taveta Wildlife Forum - Wildlife Village Committees - Taita Taveta Land Owners Association - Mbololo Wildlife Committee	These have been initiated by NGOs and KWS for wildlife conservation in Tsavo area.	Geographical proximity, historical association, dependence for livelihoods	Personal gains, economic development and environmental conservation; social, cultural and political interest; equity and justice
	- Community Game Sanctuaries	Mramba Community Sanctuary, together with Lualenyi and Oza ranch, plans to start a Lumo Wildlife Sanctuary. Wushumbu, Bura, Mbale and Kasigau ranch intend to form Wumbubaka Community Sanctuary		
	Unorganised groups - Local individuals, families, households - Local resource users - Local traditional authorities	Legal and illegal use of forest resources Encroachment on forest land Conflicts with forest wildlife		
Private sector	- Business and commercial enterprises *e.g.* tour operators	Various tour operators bring tourists to the park and sanctuaries	Economic interest	Economic gains
	- Game sanctuaries, the main ones being Taita Hills Wildlife Sanctuary and Taita Rukinga Wildlife Sanctuary	Licensed private enterprises keeping wildlife on their land to attract tourists		
	- Forest product harvesters	Currently there are no sawmills in any forest in Taita Hills, but a private company buys resin from the Forest Department and local people, who collect it from pine trees on private land in Mbololo		

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Individuals in their own capacity	- Specific individuals with a strong zeal to enhance local development and/or conservation	Some individuals communicate directly with government officials over certain matters of concern or may influence decision-making and local people's behaviour through mobilisation.	As others, but with specific personal interests, *e.g.* economic interest, socio-political responsibili-ties, moral and spiritual concerns

In order to appease the local communities and involve them in the conservation of both wildlife and forest, the relevant government departments, in conjunction with non-governmental organisations, have initiated community-based conservation projects. Although these projects have created hopes among stakeholders, they have not yet anchored well, as they have compounded the already existing management-related conflicts. In particular, the local communities view the initiators of these projects with a lot of scepticism. Moreover, the respective laws do not adequately support these projects, which include community wildlife sanctuaries or exploitation of wild animals for consumption. The project approach of the community-based conservation endeavour creates pockets of discontent among residents of areas where such projects are not implemented, or even at the national level. In other initiatives related to community-based conservation that are meant to reduce human-wildlife conflicts, such as fencing, the same discontent is evident. An example is the erecting of a 30 km Bura-Maktau electric fence in the Bura-Maktau area, but not in Kasigau, where direct human-wildlife conflicts are also intense.

Nevertheless, the direct human-wildlife conflicts are the most pressing in wildlife areas. The method to be used in solving this problem will determine the perception of the local communities towards conservation efforts. Currently, as noted by some stakeholders, including local communities, the problem is receiving considerable attention and may bring stakeholders together as they work to find solutions to their common problem. The main strategy used is community-based conservation and various incentives. The present study makes some recommendations in this regard, as a contribution to community-based conservation.

Recommendations

Community-based conservation endeavours should be to persuade people who are in a position to conserve wildlife (habitats) and forest biodiversity to decide to conserve them. The people who are in position to conserve, based on the premise of this thesis, are all the stakeholders. For the local communities, this involves letting them decide that wildlife and forest biodiversity conservation is a high-value use of their land and its natural resource assets. This implies that wildlife and forest conservation should be treated as a form of land use among

other alternative land uses at the local level. However, as much as possible, the local people need to be aware of the intangible values of natural habitats. This may be done through education and publicity campaigns.

Nevertheless, the argument of this study is that entitlement rights form the basic incentive for greater local community participation in wildlife and forest biodiversity conservation in Kenya. This requires a system of resource management where rights held exclusively by the central government are shared with local or regional organisations or the local government. In this regard, benefits and responsibilities will also be shared. This implies more emphasis on and improvement of the already existing endeavours of community-based conservation initiatives at the local level. To achieve this in Taita, the following general recommendations are made:

1. *Background information.* The community-based conservation projects require a better understanding of local social, political, economic and ecological conditions. This is important, as the outcome depends on the socio-economic and ecological conditions, which are dynamic in nature. Therefore, appropriate research should be done and, since socio-economic and ecological conditions are dynamic, the design of community-based conservation projects should allow flexibility and improved monitoring and evaluation. This requires an adaptive management approach that would implement and take care of any unexpected outcome. In this way, a 'get on with it' mentality would be negated. Quite often with community-based conservation, once a project has been identified and expectations are raised among donors, recipients and other stakeholders, all become focused on getting project activities moving. This explains why projects are so often launched with limited understanding of either ecological or socio-economic/political conditions, or real consensus between project supporters and communities on the objectives and respective roles or responsibilities. This is usually obvious, as project initiators know that background information and consensus are important, but feel under pressure to get the project off the ground.

2. *Ecosystem management and community-based conservation.* Community-based conservation based on the ecosystem approach should not be pursued primarily through projects covering small areas, but be done within what may be construed as an ecosystem on the basis of ecological and socio-economic studies. The main reason for this is that loss of wildlife and forest biodiversity and human-wildlife conflicts are land-use issues. As we observed in Taita, human population expansion and socio-economic activities, primarily resulting from expansion of agriculture and human settlements, lead to fragmentation and degradation of natural habitats. Therefore, community-based conservation initiatives aiming at controlling land-use changes should endeavour to involve all the people within the ecosystem in the hills and lowlands on a long-term basis. By contrast, projects are characterised by being very limited in time, space and number of beneficiaries. Certainly, if the ecosystem approach is one of the justifications for community-based conservation, then wildlife and forest conservation requires coordinated action over relatively large areas. This is more critical for wild animals, which roam over large territories under different tenure and use. Moreover, because is the areas concerned are usually much larger

than the area under the control of any individual, there is a need to identify or to create institutional 'actors' who can make and implement decisions.

3. *Institutional actors.* Such institutions will form 'managing' entities in which the rights held by the state are shared between the central government and local (*e.g.* provincial administrative areas such as district, division, location and sub-locations) or regional organisations (*e.g.* form biodiversity regions) or government (local government county councils). For instance, although the Kenya Wildlife Service is represented in all areas where there are national parks and reserves, local jurisdictional areas are not clear as far as areas outside national parks and reserves are concerned. For game reserves, the situation may appear clearer, since they fall under the respective local government authorities, but the issue of who owns and who has a jurisdictional mandate over wildlife makes things even more complex. With respect to forest management, this is clearer, since the Forest Department, like all other government departments, operates mainly at district level within the provincial administration structure. The 1998 attempts of the Kenya Wildlife Service to form biodiversity regions need to be revisited. However, these areas need to correspond as far as possible not only with current provincial and local government jurisdictional areas, but also with what may be construed as an ecosystem. This is a complex matter and touches on critical issues of governance under the current Kenyan constitution. Nonetheless, it is critical in the endeavour of linking wildlife and forest conservation with economic development.

4. *'Protectionism' and community-based conservation.* This concerns conservation and socio-economic development, the doctrine of sustainable development and the goal of 'conservationism'. Since protectionism has failed over large parts of Africa, more emphasis should be put on improving the linkage between community development activities and conservation objectives. Clearly, the precepts of 'protectionism' are antagonistic to those of community-based conservation. However, it is imperative to have some degree of 'protectionism' in terms of control and regulation. In this case, protected areas should remain protected as the core areas in a larger ecosystem. Many community-based conservation projects have two explicit objectives, namely, biodiversity conservation and the socio-economic development of local communities. The usual rhetoric is that the two are not incompatible or contradictory, but are in fact complimentary, mutually reinforcing and even inseparable. This may be true in the long term, but in practice in the short term, these objectives frequently do conflict. For instance, restricting access to the harvesting of forest or wildlife products may be essential for maintaining the respective resources for future generations, but it can place great hardship on the present generation. Unfortunately, decisions are usually made and actions are taken in response to short-term pressures, especially in situations where widespread poverty is evident. Thus, when objectives conflict, it must be made clear which takes precedence or how much can willingly be compromised on one or the other. Nonetheless, community-based conservation initiatives should be long-term and all the relevant stakeholders involved should be retained from the beginning with possibly changing roles and responsibilities at different phases of the venture, where possible. From the onset, the local communities involved

should play the lead role of the initiative in terms of ownership. This calls for a dynamic institutional arrangement, with all the different stakeholders playing varying roles until such initiatives become self-sustaining through responsible ownership and management by the target local communities with demonstrable urgency, legitimacy and power. In this way, the phrase 'project handing over' to the local communities becomes irrelevant.

5. *Stakeholders and community-based conservation.* Community-based conservation project initiators and research concur that participation is important at all stages of preparation and implementation of the community-based conservation projects. However, how to achieve participation should be made as clear as possible. This study proposes an entitlement analysis, which tells who has what rights over specific resources in the context of the right to own, the right to use and the right to intervene. The stakeholders should be identified on the basis of these rights and local-level power relations. This would avoid 'misplaced ownership', where project supporters, after having designed and mobilised the funding for a project, are often more intent on making it succeed than the beneficiaries. This leads them to continue at all costs and make compromises just to keep the project alive. In some situations, community-based conservation projects may be perceived as islands of relative prosperity in the midst of poverty. This may attract immigrants to the area or specific categories of people or stakeholders who may not be the target community, but who may have power in gaining access to, and control over, respective resources. This may happen with the proposed formation of Forest Associations as a way of enhancing community-based forest conservation. This calls for stakeholder identification, particularly of the key actors at the local community level. This includes those who actually control the land use and the natural resource-use processes that threaten wildlife and forest biodiversity. Targeting these key decision-makers and actors is essential. This implies a long-term arrangement that calls for fundamental legal and policy reform relating to ownership, proprietorship/use or control of land to natural resources. This is what entitlement is about. Such reforms may be desirable, but community-based conservation projects are not an effective way to achieve them and biodiversity conservation generally cannot wait while they are being achieved through other means. These other means include constitutional reform, national land-use reform and amendment of various legal instruments, policy and institutions.

6. *Organise local communities with clear institutions.* Since the local communities are often not well organised with respect to wildlife and forest biodiversity conservation, more attention is needed to build and ensure effective local community institutional capacity. Thus, community-based conservation endeavours should identify local institutions amongst the existing ones or facilitate the formation of new institutions for the management of areas of an ecologically significant size. Such institutions would include conservancies, sanctuaries, village trusts, land trusts, companies and associations, among other relevant forms of grouping. The formation of these institutions should be based on entitlement rights, with clear stakeholder identification, to avoid management-related conflicts, including leadership and representation wrangles. This is clearly easier to do when dealing with a few private large-scale landholders, such as private ranches, but the

challenge is to achieve it when dealing with many private small-scale landholders or communal landholding arrangements. These are groups of people who are sometimes difficult to bring together or whose representation is not clear. However, this should not be a problem for group ranches in Kenya if, in the first place, ranch ownership is clear and not contested. Thus ranches should be well organised to make land-use decisions and enter into contracts etc. In Taita, six groups formed for the purpose of community-based wildlife conservation were identified. These include the Taita Taveta Wildlife Forum, the Wildlife Village Committees, the Taita Taveta Land Owners Association, the Mbololo Wildlife Committee and the Community Game Sanctuaries Owners. It was difficult to tell who were the members of these six groups. It appeared as though they were not well constituted or were the outcome of an unclear process that has already withered. Nonetheless, coordination is imperative in order to ensure efficiency, sustainability and equity. All these institutions should be linked to each other to form a structure that includes all stakeholders.

7. *Incentives and community-based conservation.* When it is fully based on clear entitlement rights, community-based conservation should be viewed as a package of incentives. Indeed, the conception of local incentives purely in terms of community economic benefits is too simplistic and potentially counterproductive. Incentives are a good way to help people to do something they want to do with what they have, but not a good way to get them to want to do it, since the community must have an urgent claim for what it wants to do, legitimacy in its claim and what it wants to do, as well as power. In general, community-based projects, being a package of incentives to conservation; are of three types: (i) where communities obtain economic benefits directly from the project itself; (ii) where the project aims to assist communities to derive economic benefits from sustainable utilisation of wildlife and forest biodiversity, such as ecotourism, forest products collection, and controlled hunting etc. and (iii) a combination of the (i) and (ii) above. In the context of 'conservationism,' most projects are designed with the aim of economically benefiting local communities, mainly from the utilisation of the respective wildlife and forest biodiversity resources. However, in time, these projects tend to benefit local communities directly, as it is agued that local communities need direct benefits. Another reason is that the second type of project tends to be long-term and benefits are often slow in coming and sometimes less than expected, so communities become impatient or discouraged. On the other hand, the project supporters seek to sustain community enthusiasm and goodwill by providing some direct economic benefits, intending them to be on an 'interim' basis. Some of the direct benefits in Taita include the construction of Maktau polytechnic and the Ndovu clinic in Voi, the provision of famine relief food by the Kenya Wildlife Service under the Community Wildlife Service initiatives. Once a project changes to this type, it creates dependency and communities come to regard the benefits from the project as an entitlement and grow hostile if they are withdrawn. For instance, in Taita, some of these direct benefit-oriented projects are not easily recognised by local people as benefits from wildlife conservation, but as rights and an overdue responsibility of the government to provide specific amenities and infrastructure. This significantly contributes to the management-related conflicts and hence negative perceptions towards

conservation. Instead, the need is to identify or provide incentives for conservation by creating a value for biodiversity that is greater than the value of the products of alternative land uses from the perspective of the local communities. Clearly, this is easier said than done. From the perspective of most landholders, maintaining natural habitats is a non-competitive land use, because the benefits it produces tend to accrue in the long term and to a broader group, whereas benefits from competing land uses tend to accrue to the landholding entity and in the short term. When it comes to investment and use of their assets, most people are not fundamentally altruistic, and they apply a high discount rate, as they value personal benefits over group benefits and value short-term returns over long-term returns. This belief may be controlled by a well thought-out incentives and disincentives mechanism of economic policy reforms for improving the 'terms of trade' for biodiversity-friendly land uses. For instance, by increasing the individual's short-term benefits from maintaining natural habitats and/or reducing the individual's short-term benefits from competing land uses. There may be need to eliminate policies that lead to the destruction of natural habitats (especially clearing forest), the key to claiming land for private ownership. Conversely, where possible, policies should be introduced that strengthen people's claim to land if they manage it in a biodiversity-conservation-friendly manner. Devolving control of land and resources to local communities may be a necessary condition in some cases but, in the absence of appropriate incentives, they may exploit the resources for short-term profits. There may also be a need to achieve a balance suitable for biodiversity conservation in subsidies for competing land uses, such as agriculture and subsidies for biodiversity-friendly 'infant industries' such as wildlife works in Taita, among other ventures.

8. *Help landholders initiate biodiversity-friendly economic activities.* Since community-based conservation endeavours are a good way to help people do something they want to do with what they have, the emphasis should be on responding to demand, thus helping people to do what they already wanted to do if it is in line with the imperatives of wildlife and forest conservation. For instance, this could be done by reducing investment barriers and providing technical assistance and financial support, among other things. It may not work if a community-based project is used to stimulate demand by providing all of the initial investment. The drive should be to recognise real demand by the willingness of landholders to invest their own resources such as land, particularly in the case of ranches, as for Taita. However, in some situations, community-based conservation initiatives may stimulate demand, such as ecotourism, medicinal plants, and hunting for sport, among other specific biological resources that may easily and efficiently be produced by maintaining reasonably natural ecosystems. In the case of Taita, the ranches, which are in debt, could be redeemed through community-based conservation initiatives. More research work in case of Taita ranches is necessary to determine who are the actual owners and to recommend specific conservation and development activities. Alternatively, in situations where there are possibilities of losing biodiversity that cannot fully 'pay its own way', which is common, there may be a need to pay landholders directly for maintaining biodiversity and opportunities foregone. In reality, this may mean acquiring land for conservation. This may be done through direct purchase, leasing or conservation

easements. Such an approach can be expensive, particularly if it involves land acquisition, but it may well be more cost-effective compared with conventional community-based project approaches.

9. *Compensation scheme for loss related to wildlife and forest conservation and mitigation of direct human-wildlife.* In addition to community-based initiatives aimed at assisting communities to derive socio-economic benefits from the sustainable management of wildlife and forest biodiversity, a compensation scheme for losses incurred in the course of wildlife and forest conservation is imperative. These losses could be covered through an insurance package that clearly identifies different stakeholders at the local level and defines as clearly as possible the circumstances of incurring specific losses. Such a scheme, based on a clear understanding of all direct human-wildlife conflicts, could classify areas in Kenya on the basis of intensity of conflict for easy administration. In some areas, where such conflicts are intense beyond a certain level, fencing could be the most economical measure. However, in all areas of direct human-wildlife conflicts, problem animal control should be a must.

10. *Funding wildlife conservation initiatives.* This thesis recommends community-based conservation initiatives based on entitlement rights and emphasises the engagement of local communities' in wildlife and forest resource utilisation for consumption and other purposes. In terms of sources of funds, the thesis observes that such utilisation, particularly of wild animals, is unlikely to be reliable and sustainable for conservation and management activities. However, when coupled with other recommendations for community-based conservation, significant achievements will be made in endearing conservation to the local communities through positive contributions to local livelihoods. It will also significantly reduce over-reliance on equally unreliable and unsustainable government and donor funds. To clarify this aspect, further studies on the economics of wildlife utilisation are necessary. However, there is no doubt that, in the case of revenue from utilisation for consumption and other purposes, government and donors are the main sources of funds for conservation. At the national level, the conditions for funding need to be clear. Some of the conditions may include the type of agencies with a legal mandate over wildlife and/or forest management, and types and nature of activities to be funded. Details of these agencies in regard to operations and appointment of staff, particularly the directors, should be clear and free from political patronage.

Annex 1:
Kenya's national parks, reserves and other conservation areas

National park/ reserve	District	Size (km^2)	BP No.	Legal notice/ proclamation no.
1. *Sibiloi	Marsabit	1,570.9	204/47	160 of 7/8/73
2. *Central Island (L. Turkana)	Turkana/Marsabit	5.0	204/53	18 of 26/1/83
3. *South Island (L. Turkana)	Marsabit	38.8	204/54	13 of 26/1/83
4. *Malka Mari	Madera	876.0	204/66	338 of 6/10/89
5. Chyulu	Makueni	470.9	204/51	12 of 26/1/83
6. *Mount Elgon	Trans Nzoia	169.2	204/42	112 of 5/4/68
7. Saiwa Swamp	Trans Nzoia	2 or 5.5	204/45	11 of 25/1/74
8. Meru	Meru	870.4	204/37	4756 of 18/12/66
9. *Kora	Tana River	1,787.8	204/65	339 of 6/10/89
10. Mt Kenya	Nyeri	588.7	204/6	69 of 6/12/49
	Meru	10.5	204/33	181 of 3/6/65
	Kirinyaga	105.2	204/35	
	Embu	10.7	204/36	
	Total	715.1		
11. *Ndere Island	Kisumu	42.0	204/59	368 of 3/11/86
12. Lake Nakuru	Nakuru	188.0	204/57	137 of 12/6/1967
13. Aberdares	Nyeri	572.2	204/5	28 of 28/5/50
	Muranga	166.5	204/30	172 of 5/6/68
		27.5	204/31	
	Total	766.2		
14. Ruma	South Nyanza	120.0	204/56	100 of 14/6/83
15. Hell's Gate	Nakuru	68.0	204/55	13 of 2/2/84
16. Longonot	Nakuru	52.0	204/52	13 of 26/1/83
17. Ol Donyo Sabuk	Machakos	18.4	204/38	274 of 7/12/67
18. Nairobi	Nairobi	117.2	204/1	48 of 16/12/46
19. Amboseli	Kajiado	392.1	204/44	267 of 1/11/74
20. Tsavo West	Taita Taveta	9,065.0	204/2/8/15	17 of 6/4/48, 23 of 29/9/53 and 10/2/59
21. Tsavo East	Taita Taveta/Kitui	11,747.0	204/2	17 of 6/4/48
22. Arabuko Sokoke	Kilifi	6.0	204/67	426 of 5/11/90
23. Kisumuimpala sanctuary	Kisumu	0.3	204/72	418 of 30/10/92
Total		29,086.6		
Marine national parks				
1. Malindi	Kilifi	6.0	204/39	98 of 26/3/68
2. Watamu	Kilifi	10.0	204/43	98 of 26/3/68
3. Mombasa	Mombasa	10.0	204/61	315 of 9/12/86
4. Kiste	Kwale	28.0	204/49	92 of 9/6/78
Total		54.0		

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National park/ reserve	District	Size (km^2)	BP No.	Legal notice/ proclamation no.
National reserves				
1. Marsabit	Marsabit	1,564.0	216/49	366 of 5/7/67
2. *Nasolot	West Pokot	92.0	216/43	300 of 2/11/79
3. *South Turkana	Turkana	1,019.0	216/44	290 of 26/10/79
4. Losai	Marsabit	1,806.8	216/39	8 of 9/1/76
5. Kerio Valley/Rimoi	Elgeyo Marakwet	65.7	216/46	13 of 26/1/83
6. Kamnarok	Baringo	87.7	216/47	101 of 14/6/83
7. *Kakamega	Kakamega	44.7	216/52	95 of 31/5/85
8. L. Bogoria	Baringo	107.1	216/26	270 of 1/11/70
9. Samburu	Samburu	165.0	216/38	188 of 23/8/85
10. Shaba	Isiolo	239.1	216/25	268 of 12/10/74
11. Buffalo springs	Isiolo	131.0	216/53	183 of 23/8/85
12. Bisanadi	Isiolo	606.0	216/42	261 of 28/9/79
13. Rahole	Garissa	1,270.0	216/27	5 of 9/1/76
14. Laikipia	Laikipia	165.0	216/57	526 of 16/10/91
15. North Kitui	Kitui	745.0	216/40	187 of 7/9/1975
16. *Mwea	Embu	68.0	216/29	6 of 9/1/76
17. Masai Mara	Narok/Trans Mara	1,510.0	216/50	271 of 1/11/74
18. South Kitui	Kitui	1,133.0	216/41	185 of 7/979
19. Arawale	Garissa	533.2	216/23	272 of 1/11/74
20. Boni	Garissa	1,339.0	216/31	7 of 9/1/76
21. Dodori	Lamu	877.4	216/33	75 of 14/5/76
22. Tana River primate	Tana River	169.0	216/28	4 of 9/1/76
23. *Shimba Hills	Kwale	192.5	216/19	298 of 16/9/68
24. Savo road and railway	Taita Taveta	112.0	216/6	830 of 16/8/49
25. Ngai Ndeithia	Machakos	212.0	216/32	9 of 9/1/76
Total		14,254.2		
Marine reserves				
1. *Kiunga	Lamu	250.0	216/39	291 of 26/10/79
2. Malindi-Watamu	Kilifi	213.1	216/17	99 of 26/3/68
3. Mombasa	Mombasa	200.0	216/54	316 of 9/12/88
4. Watamu	Kilifi	32.0	216/18	99 of 26/3/68
5. Mpunguti	Kwale	11.0	216/35	91 of 9/6/78
6. Diani-Chale	Kwale	Unknown		1994
Total		706.1+		
National sanctuary				
1. Maralal	Samburu	5.0	216/51	564 of 2/12/1968
Proposed National Parks				
Fourteen Falls				
Mau				

BP = Boundary Plan and * = conservation areas that have been encroached upon.

Sources: KWS, April 1990 (Map and list compiled by F. M. Muchiri). KWS (1990), A Policy Framework and Five Years Investment Program (1990/91-1995/1998), Interviews with KWS staff to confirm some contradictions in various reports and compilations.

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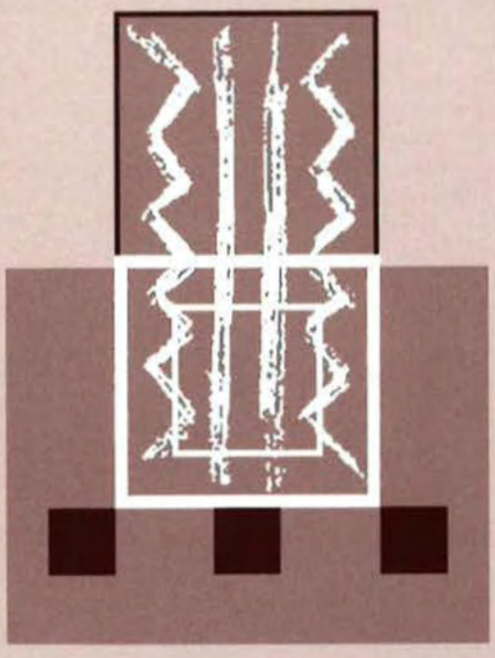

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